



# VYSOKÉ UČENÍ TECHNICKÉ V BRNĚ BRNO UNIVERSITY OF TECHNOLOGY



FAKULTA PODNIKATELSKÁ

*ÚSTAV EKONOMIKY*

FACULTY OF BUSINESS AND MANAGEMENT

*INSTITUTE OF ECONOMICS*

STRATEGIE VSTUPU PRODUKTU 'A' NA ČESKÝ A SLOVENSKÝ TRH

*STRATEGY FOR LAUNCHING PRODUCT 'A' IN THE CZECH AND SLOVAK  
MARKETPLACES*

*DIPLOMOVÁ PRÁCE*

*MASTER'S THESIS*

*AUTOR PRÁCE*

AUTHOR

*MARTIN KOLEK*

*VEDOUcí PRÁCE*

SUPERVISOR

*ING. VÍT CHLEBOVSKÝ, PH.D.*

BRNO 2011

This version of the diploma thesis is abridged (pursuant to Dean Directive No. 1/2010). It does not identify the entity at which the diploma thesis was conducted (hereinafter the 'entity in question') and any information which is at the discretion of the entity concerned its trade secrets or confidential information.

# **MASTER'S THESIS ASSIGNMENT**

**Kolek Martin, Bc.**

---

European Business and Finance (6208T150)

Pursuant to Act. No. 111/1998 Coll., on Higher Education Institutions, and in accordance with the Rules for Studies and Examinations of the Brno University of Technology and Dean's Directive on Realization of Bachelor and Master Degree Programs, the director of the Institute of Economics is submitting you a master's thesis of the following title:

**Strategy for Launching Product "A" in the Czech and Slovak Marketplaces**

In the Czech language:

**Strategie vstupu produktu "A" na Český a Slovenský trh**

Instruction:

Introduction  
Executive summary  
Theoretical basis of the work  
Problem analysis and current situation  
Proposals and contribution of suggested solutions  
Conclusions  
References  
Appendices

Seznam odborné literatury:

CAMPBELL, D., STONEHOUSE, G. AND HOUSTON, B.. Business Strategy. Second Edition. Oxford: Elsevier Butterworth Heinemann, 2002. ISBN 0-7506-5569-0.

DOOL, I., LOWE, R., International marketing strategy : analysis, development and implementation. New York : Routledge, 1994. ISBN 0-415-08984-0.

HOLLENSSEN, S., Global marketing : a decision-oriented approach. Harlow : Prentice Hall : Financial Times, 2007. ISBN 978-0-273-70678-6.

KOTLER, P., Principles of marketing. Upper Saddle River : Pearson Prentice Hall, 2004. 10th ed. ISBN 0-13-101861-2.

MAŘÍK, M. - MAŘÍKOVÁ, P. Diskontní míra pro výnosové oceňování podniku. Praha: Oeconomica, 2007. ISBN 978-80-245-1242-6.

PORTER, MICHAEL E., 1947- Competitive advantage : creating and sustaining superior performance. New York : The Free Press, 1998. ISBN 0-684-84146-0.

The supervisor of master's thesis: Ing. Vít Chlebovský, Ph.D.

The deadline for the submission for the diploma thesis is given by the Schedule of the Academic year 2010/2011.

L.S.

---

doc. Ing. Tomáš Meluzín, Ph.D.  
MBA Director of the Institute

---

doc. RNDr. Anna Putnová, Ph.D.,  
Dean of the Faculty

Brno,  
29.08.2011

## **Abstrakt**

Cílem této práce je vypracovat strategii vstupu produktu "A" farmaceutické společnosti "F" na český a slovenský trh. V této práci je tato strategie analyzována a hodnocena pomocí metody NPV (Net Present Value) a dalších metod. Na základě tohoto hodnocení je strategie vybrána.

První kapitola zahrnuje teoretická východiska jednotlivých metod použitých pro účely této práce. Je zde zejména osvětlena metoda NPV a metody vhodné pro analýzu relevantních trhů, společnosti "F" produktu "A".

Ve druhé kapitole je provedena analýza trhu České a Slovenské republiky a také analýza společnosti "F" a produktu "A". Tyto analýzy zahrnují jak vnitřní tak vnější potenciál společnosti i produktu.

V závěrečné kapitole je vypracována navrhovaná strategie vstupu pro produkt 'A', jež je poté ekonomicky hodnoceny pomocí modelu NPV a dalších modelů.

## **Abstract**

The purpose of this dissertation is to elaborate a specific market entry strategy of a product "A" manufactured by company "F". This market entry strategy is then analysed and evaluated by NPV (Net Present Value) method and others. Based on this evaluation the strategy is then selected.

The first chapter covers theoretical and methodological background of methods used for the purpose of this paper. Mostly the NPV method is introduced followed by methods suitable for relevant markets, company "F" and its product "A" analysis.

In the second chapter the Czech and Slovak market analyses are elaborated accompanied by the analysis of company "F" and its product "A". These cover both the internal and external potential of the company and its product.

The last chapter analyses the elaborated market entry strategy of a product "A" accompanied by the economic evaluation using the NPV method and other methods.

## **Klíčová slova**

NPV, strategie vstupu na trh, farmaceutický průmysl, ROI, bod zvratu

## **Key words**

NPV, market entry strategy, pharmaceutical industry, ROI, Breakeven point

## **Bibliographic citation**

KOLEK, M. *Strategie vstupu produktu "A" na Český a Slovenský trh*. Brno: Vysoké učení technické v Brně, Fakulta podnikatelská, 2011. 106 s. Vedoucí diplomové práce Ing. Vít Chlebovský, Ph.D..

## **Declaration**

I declare that this master's thesis is original and has been elaborated independently. I also declare that the list of references is complete and that I did not breach of copyright in the sense of Act No. 121/200 Coll. On Copyright Law and Rights Related to the Copyright and on the Amendment of Certain Legislative Acts.

Brno, 27<sup>th</sup> August 2011

.....

Martin Kolek

## **Acknowledgements**

I would like to thank especially my mentor Mr. Vít Chlebovský for valuable advices and suggestions. I would also like to thank the business unit manager of company 'F' for his willingness and time devoted to the numerous interviews and for many provided materials.



## 1. Content

1. Content .....	8
2. Introduction .....	11
3. Company introduction and problem determination.....	13
a. Company introduction.....	13
b. Problem determination .....	14
4. Theoretical and methodological background.....	16
a. Theoretical background.....	16
i. PEST analysis .....	16
ii. Porter's five forces model.....	18
iii. SWOT analysis .....	20
iv. Vision, Mission and Objectives.....	21
v. 7 P's Marketing Mix .....	22
vi. NPV .....	29
vii. Specifics of Business to Business (B2B) .....	30
viii. Marketing mix in the scope of B2B .....	31
ix. Segmentation of B2B.....	32
x. Competitors' analysis.....	32
b. Methodology .....	33
i. Research techniques.....	34
ii. Summary of references.....	35
5. Analytical part.....	36

a.	Company's vision, mission and objectives .....	36
b.	PEST Analysis .....	37
i.	Country's pharmaceutical business ratings .....	46
ii.	Porter's Five Forces Model .....	47
iii.	Segmentation and Dynamics of pharmaceutical market.....	51
iv.	Evaluation of analysis of micro environment.....	59
v.	Competitor's analysis.....	60
vi.	SWOT Analysis.....	62
vii.	7 P'S Marketing Mix .....	66
6.	Strategy proposal and evaluation.....	77
a.	Present strategy evaluation.....	77
b.	Proposed strategy for launch of product 'A' .....	78
i.	Product.....	78
ii.	Price .....	79
iii.	Place .....	79
iv.	Promotion.....	80
v.	People .....	81
vi.	Process.....	83
vii.	Physical Evidence .....	83
c.	Prognosis and Economic evaluation.....	83
i.	Prognosis.....	84
ii.	NPV model .....	85

iii.	Return on Investment .....	89
iv.	Breakeven point .....	89
v.	Sensitivity analysis .....	90
vi.	Strategy timeline .....	90
7.	Conclusion .....	92
8.	References .....	95
9.	List of tables.....	100
10.	List of Pictures.....	101
11.	List of Figures .....	101
12.	Appendices .....	103

## 2. Introduction

Entering a new foreign market or markets represents a very important decision that company must make if it wants to sustain even more rapid growth. It is very important to consider carefully all aspects of this big step. Each of the markets has its own specific characteristics and trends that in many cases differ a lot from each other. In order to choose the right market in the fitting time it is needed to analyse these markets and then design a proper strategy to enter market successfully.

The environment of the company is changing rapidly and it is then crucial not to stand behind. It is needed to continuously analyse the environment and seek for new opportunities that are created because of the changes. This enables the company to keep up with the competitors and thus sustain stable position in the market or even enlarge its market share and its value alone. These opportunities lie also in the possibility of launching a product on a market, which is the case of company 'F'.

The company 'F' is a well known company operating in the field of pharmaceutical industry all over the world. It is present also in the market of the Czech Republic and Slovakia. The launching of the product brings up a vast number of questions that company 'F' has to answer before it can realise the launch itself. To these questions author concludes one of the most significant and recapping ones which are: 'How to launch this product effectively and is it worth it to do that?'.

The main goal of this thesis is to answer these pivotal questions with the support of a precise analysis, relevant arguments and suggestion of a suitable strategy.

The first part includes the company introduction followed by the determination of the studied problem. It introduces the reader to the specifics of the market entering comprising both of its basic drawbacks and advantages.

The second chapter brings the analysis of theoretical background supporting the analysis of the situation itself and also the proposal of appropriate strategy. It also outlines the methodology used.

The third part analyses the markets of the Czech Republic and Slovakia, the position of company 'F' on the market and the specifics of the product 'A'. It applies the theories introduced in the previous chapter. The company marketing strategy is analysed by using the 7 P's Marketing Mix model. Also the main competitors are dissected.

The last chapter evaluates the current company strategy. It then proposes the specific strategy for launching the product 'A'. Finally the prognosis of sales is elaborated followed by the economic evaluation in a form of Net Present Value model and other relevant indicators.

### **3. Company introduction and problem determination**

#### **a. Company introduction**

The history of the company 'F' is relatively rich touching the early twentieth century. It was established in 1931 in USA (Company 'A', 2011a). Its headquarters is situated in Deerfield in Illinois (USA). Originally it pioneered the intravenous therapy solutions. In 1954 it expanded to Europe by founding an office in Belgium. During the 1980's and 1990's it grew fast thanks to the help of numerous acquisitions and mergers. These actions contributed also to enlargement of its portfolio by offering vaccines and a variety of blood products (Company 'A', 2011b).

Today its primary target represents drugs treating haemophilia, kidney diseases, immune disorders, infectious diseases trauma, and other chronic and acute medical conditions. It is mainly a developer of new original branded drugs which puts a strong emphasis on the Research and Development (R&D) spending. In 2010 it spent 915 million USD on R&D. Thanks to that company 'F' uses the most modern and innovative technologies for development of drugs of a highest quality and efficacy which makes it one of the leading companies in this area. Company 'F' employed 47 600 people and reached sales of 12.8 billion USD in 2010. Most of its sales come from USA representing 41 % of total sales. The second position takes Europe with 33 %, third Asia and Pacific with 14 % and last Latin America and Canada with 12 %. In Europe it is present in Austria, Belgium, Czech Republic, Germany, Ireland, Italy, Malta, Poland, Spain, Switzerland and the United Kingdom.

Company 'F' is divided into three main manufacturing divisions including Bioscience, Medication delivery and Renal division. The bioscience the recombinant and plasma-based proteins to treat haemophilia and other bleeding disorders, plasma-based therapies to treat immune deficiencies, alpha 1-antitrypsin deficiency, burns and shock, and other chronic and acute blood-related conditions, products for regenerative medicine, such as bio-surgery products and vaccines can be concluded. This area is the largest and represented total sales of 5.7 billion USD in 2010 (Company 'A', 2011c). Company 'F' is also a leader in production of these products.

The second largest division is Medication delivery. The sales reached 4.8 billion USD in 2010. To this group belong the intravenous (IV) solutions and administration sets, premixed drugs and drug-reconstitution systems, pre-filled vials and syringes for injectable drugs, IV nutrition products, infusion pumps, as well as products and services related to pharmacy compounding, drug formulation and packaging technologies. The most relevant products for this dissertation are inhalation anaesthetics that belong to this division. Company 'F' is one of the most successful manufacturers in all these areas.

The smallest portion of sales worth 2.4 billion USD is generated via renal division. Company 'F' manufactures products to treat end-stage renal disease, or irreversible kidney failure and other products used in dialysis therapy.

### **b. Problem determination**

This part analyses the basic specifics and problem areas of the successful launch of product 'A'. It only determines these problems. The deep analysis and solution proposal are delivered in subsequent sections.

The intention of company 'F' is to launch product 'A' on Czech and Slovak market. This drug is an anaesthetic agent. To understand the background it is important to outline the development of this drug. Company 'F' launches this product as a generic drug. The fact is that it originally invented this product. Then it licensed it to one Japanese pharmaceutical company. It then licensed this drug to another company, which then brought it on the market as an original drug<sup>1</sup>. This drug is very successful and thus company 'F' wants to grab sales also for itself. That is why it has already launched the generic drug on US market and also on other markets.

However, there are a few significant problems regarding the successful launch. These most important problems can be identified as:

- Low and even diminishing market share of company 'F' on inhalation anaesthetics market

---

<sup>1</sup> Company 'F': Internal sources

- High entry barriers
- Strong competition
- Defocused area of company 'F' of inhalation anaesthetics market
- Price war with another anaesthetic agent (Isoflurane)
- No extensive usage of another anaesthetic agent (Desflurane)
- Determination of costs and return on investment

Company 'F' is present on the market of inhalation anaesthetics even now in the Czech Republic and Slovakia, but plays only a marginal role and also its market share is shrinking. This is caused by more factors. There is a very strong competitor 'B' that is ruling most of the market and is even increasing its share.

There is also a high barrier to enter this market represented by the necessity of providing a special machine called vaporizer that is used for preparation of the right concentration of specific inhalation anaesthetic agent. The competitor has already placed much of them in the customers' facilities. This also brings high initial costs to provide the vaporizers as they are relatively expensive.

Another reason for the low and diminishing market share is the presence of price war on Isoflurane, which decreases the value of sales. Isoflurane is also being driven out by more modern and more effective anaesthetic product 'A' of the main competitor 'B', which is also supported by a strong marketing campaign of company 'B'.

Negative factors are represented also by diminishing usage of other inhalation anaesthetic desflurane of company 'F', which is being replaced by other anaesthetics.

Finally it is crucial to estimate the costs properly, calculate the return on investment and thus determine whether it is worth it to put such an effort to succeed in this area or not.

These are the main problem areas that have to be overcome in order to successfully launch the product 'A' and thus improve the position of company 'F' on the inhalation anaesthetic market.



## 4. Theoretical and methodological background

### a. Theoretical background

This part is dedicated to the analysis of theoretical tools that are used to analyse and evaluate the current position of company 'F' and to elaborate the launching strategy for product 'A'. These include the tools for analysis of both the market and the company such as PESTEL analysis, Porter's five forces analysis, SWOT analysis, Risk analysis, Segmentation, EPRG model of internationalisation and 7 P's Marketing Mix model.

#### i. PEST analysis

This very famous and popular analytical tool is used to analyse the external (macro) environment the company faces. It takes into consideration all the external factors that are influencing the position of the company. These factors cannot be influenced by the company. It is divided into six separated areas: political/legal, economic, social/cultural and technological (Machková, 2006).

##### *Political and legal factors*

This area is focused on the environment that is formed by state authorities. It studies mainly the stability of political system. It also traces the valid laws influencing the general business activity and also the specific branch of industry. These include laws such as antitrust laws, consumer protection laws, employment laws and other specific laws. It is also important to point out the international trade regulations and restrictions, environmental regulations and protection, safety regulations, tax and customs policy, attitude of governmental organisations, lobby, corruption, law enforcement or proprietary protection (Kotler, 2007).

##### *Economic factors*

This part is vital for determination of whether the market has a growth opportunity or if there are any possible economic restrictions that could cease it. The state is performing four types of policies that determine the economic development. These policies are monetary, fiscal, income and international trade policy. With the help of these tools the state tries to control and set targets for inflation rate, discount rate, economic growth, unemployment rate, foreign exchange rate, external balance and others. As they often stay against each other it makes it very difficult to fulfil all. It is also important to track and analyse average

wages, taxation, consumer confidence or government spending and the attitude of government towards foreign investments.

### *Social and Cultural factors*

Here it is important to monitor the demographic development such as aging of population, level of education and trends in lifestyles and life standards. It encompasses also the rate of openness of the society, its habits, traditions, experience, culture dimensions, value orientation, and hierarchical needs. To analyse these aspects the Maslow Hierarchy of needs pyramid or Hofstede's cultural dimensions is used. The attitude of society is also influenced by several institutions such as state, religion, family and other organisations. These all influence the buying behaviour and preferences of the population.

### *Technological factors*

This area analyses the technological maturity of a specific country. To the most important aspects belong the level of modern technology, the rate of its obsolescence, the percentage both of GDP and industry spending on research and development, number of patents granted, number of scientists, percentage of households that have access to internet, level of Information Technologies (IT) and others.

The biggest advantages of this model are seen in the enabled understanding of external forces that are influencing the company's strategy and the possibility to evaluate opportunities and threats so that company can adapt (CIPD, 2011). Another advantage is its very simple form. It is also seen as an opportunity for a better resource allocation and facilitation of risk management. However there are not only positives. It is needed to say that it is very difficult to prioritise the most important factors that influence the company the most. Anon argues: 'The higher the likelihood of a change occurring and the greater the impact of any change, the more significant this factor will be to the firm's planning' (Oxford University Press, 2007). It is also said that because of the very turbulent economic climate the predictions become very uncertain which consequently weakens the reliability of the model (Campbell, D., Stonehouse, G. and Houston, B., 2002). Another disadvantage is the focus just on external factors influencing the company and does not consider the internal factors so it is then needed to add another analysis for example SWOT. It is also very

important to focus just on the relevant aspects not to become too complicated so that it is not clear what to concentrate on.

## **ii. Porter's five forces model**

The micro environment of a company is determined in majority by four main representatives: company, customers, suppliers and competitors. Other subjects such as public, state or dealers can be incorporated as well but they are not as important as the main four ones. On the contrary of external factors the company can influence these factors at least a bit, depending on its strength and sometimes it can even control them fully. It is then very likely that it will try to influence this environment so that it is favourable for company's goals. To analyse this micro environment the most common model used is Porter's five forces model. It supposes that the strategic position of a company is shaped by five main forces: entry of competitors, threat of substitutes, bargaining power of suppliers, bargaining power of buyers and rivalry among the existing players (Value Based Management, 2011).

### ***Threat of entry of competitors***

This part measures how difficult it is to enter your market. If it is costly and timely to enter and compete effectively it is an advantage for the company already operating on the market and so it can sustain its competitive advantage more easily. On the other hand if you cannot effectively protect your technology and know-how, if there are only a few economies of scale, the competitors can come and take the competitive advantage.

### ***Threat of substitutes***

If your customers can find similar or same product or services on the market easily and it is also not costly and timely to switch then the power of the company is weakened.

### ***Bargaining power of suppliers***

This force determines how strong the suppliers are to influence you. If they can increase the price for you or can transfer the cost on you in general they weaken your position. This is connected with the number of suppliers for the same articles, the concentration of them, the scarcity of the articles, cost and time needed to switch, the threat that suppliers can start to operate in the same branch as your company does.

### *Bargaining power of buyers*

The ability of the buyers (customers) to influence you for example in a way of forcing you to decrease your price is crucial. It is dependant also on the size of each buyer, their concentration, how many does your company have, how easy is to switch to another company or how costly it is. In general if you have only a few very important buyers, then they can influence you more easily.

### *Rivalry among existing competition*

If there are many competitors manufacturing same goods or providing same services, then it is very easy for customers to switch from one company to another, because they get always the same. If your company operates in this type of industry it has a very little power. It cannot influence the prices and not even the quantity. On the other hand if you have a monopoly then you can decide on both of these variables. Positive factor is the level of differentiation of your product; the higher the differentiation is the more power you get.

This model can be used not only as a tool for analysis of a micro environment of a company but can be also used for evaluation of a strategy implemented. In this case the goal is in the evaluation of impacts of this strategy on the change of the five forces influencing company's strength. Although this model is broadly used all over the world and offers many advantages it is not perfect. Porter designed this model and stated that it is able to evaluate the profitability of the industry (Porter, 1980). On the contrary it is said that rather the company-specific factors are decisive on the profitability (Rumelt, 1991). When using this model for industry other disadvantages reveal. The model suggests the same positions in the industry which is not true, because bigger companies have different forces acting on them than smaller companies. This is also the case of cartels, strategic alliances and other forms of cooperation. To apply this model on a huge transnational company operating in more branches of industry it is also impossible to define the specific forces because of its complexity. The most significant drawback brings the assumption that the macro environment of the company is constant which is definitely not retained. The very frequent turbulences and rapid changes are present as suggested in previous chapter. These changes are becoming even more frequent and common with passing time. It is then needed to use this tool continuously. The graphical illustration can be found in

Appendix 1)

Picture 4: Porter's five forces model.

### iii. SWOT analysis

This model is probably the most used of all. It coheres very closely with the external and internal environment analysis and fuses them into one complex unit. The letters refer to four basic elements: strengths, weaknesses, opportunities and threats. Thanks to this analysis it is possible to detect possible opportunities that are in compliance with company's goals and also to eliminate potential threats.

The strengths and weaknesses are connected with the internal environment of the company where the quality and availability of resources, skills and experience of the company are identified. The strengths are positive factors that bring to the company benefits and they should be kept and protected. The weaknesses represent activities the company is not performing well or the competitors are more successful at.

The opportunities and threats stem from the external environment of the company including both macro and micro environment. The opportunities should not only be utilized but it is vital to actively seek for them. On the other hand the company ought to try to find a solution to eliminate threats. Preferably the threats could be transformed into opportunities. The analytical outputs should then enable the company to create a clear mission and definition of strategy for reaching both long term and short term goals.

Next step should cover the consolidation of all of the four elements and then formulation of company's mission, decision making processes and finally a plan for future.

The proper elaboration of this analysis should enable the management of the company to determine the position of the company against its competitors and to define the proper strategy which should be based on the strengths and opportunities and at the same time eliminate the weaknesses and threats as much as possible.

Its big advantage is the very simple and tabular form which makes it easy to orient. On the other hand this simplicity brings a threat that it is difficult to fill it properly because it tends to a significant degree of subjectivity which is dependant partly on the uncertainties scourging the markets. If we take for example one pricing policy it can be a weakness for an

original drug producer while strength for a generic drug producer. There is also a clash with assessing priorities to individual aspects so the prioritising should not be left out. These are the reasons why it should be accompanied by other analyses such as PEST or Porter's five forces model to ensure the truthful situation. The graphical illustration is in Appendix 2 Picture 5: SWOT analysis.

#### **iv. Vision, Mission and Objectives**

Vision can be defined as a visual impression of an entity. It is a motivational message delivering a framework for a strategy. It defines the direction of development and it thus should be targeted towards the future so that it motivates employees to reach higher outputs. It can be imposed on the whole company or only on its divisions. The vision must be communicated regularly so that it is taken as a domesticated matter of fact in order to help meet objectives more efficiently. It should mirror the company's values and culture. It defines what the company wants to be in the future, defines its future identity and manages to move and coordinate employees in accordance with the objectives.

The mission is the delivery of a message the company has for its employees, customers and all people involved in the operation of company. It has to be in line with the company's values and culture. For a successful formulation of mission it is needed to consider the history, interests and objectives also of stockholders, external factors, resources and purpose of the company. To be most effective it should be short, apposite and include relevant information in order to define responsibilities.

The objectives should be the results of the vision and mission and should be concrete and real. There is a rule which defines the characteristic of objectives named SMART (Jakubíková, 2008), which say that objectives must be:

- Specific (it should be clear what has to be achieved)
- Measurable (company must be able to measure it in order to see if it is achieved or not)
- Agreed (both management and employees must agree with it)
- Realistic (it has to be possible to fulfil objective)

- Trackable (it must be possible to watch the progress)

#### v. 7 P's Marketing Mix

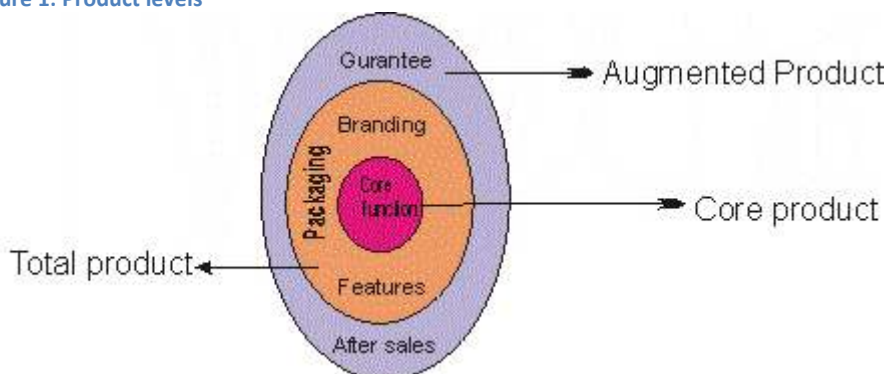
For different types of companies different emphasises can be stressed on different marketing activities. For example a company is manufacturing components for large companies and they have only a few customers it would not spend a lot of money on marketing. Much more important would be the level of technology. On the other hand companies manufacturing consumer's goods would spend huge budgets on marketing and this cost would be the most significant of all.

The model of 7 P's is the extension of an original model of 4 P's, which was primarily designed for the goods' industry (Kotler and Keller, 2007). Hence the importance of services has been increasing a modification has been made by adding three P's. It is used as guidance for definition of marketing strategy. The 7 P's represents different variables that are adjusted to generate the best output. Among these seven P's there are included Product, Price, Place, Promotion, People, Process and Physical evidence. The advantage is seen in the flexibility of this model. It can be adapted according to the varying needs of target groups and changing marketing environment (Value Based Management, 2011b). These principles, including maximising of profit, of the marketing mix are valid also in the case of pharmaceutical industry (Metyš and Balog, 2006). The individual variables are analysed below.

#### Product

Product can be divided into three different categories: goods, services and ideas. The product itself is according to this model divided into three levels, shown on picture below.

Picture 1: Product levels



Reference: Anon, 2011c

In reference to the core of the product the basic characteristics of the product which meet the needs of customers can be mentioned. Among these the physiological characteristics, product appearance, shape, taste or power can be named.

The second level, total product, is characterised as the 'differentiation' of your product. It should offer set of additional features that can be seen as symbolic values. These are for example the image, modishness, recognition of country of origin and others. These values can be and often are much more valuable than the core characteristics.

The last level refers to what you can offer with the product. It covers all possible services such as transportation, installation, after sale services, guarantee, grant of complement product etc (Machková, 2009).

Before entering the market it is essential to adapt the product so that it obeys the valid legal regulations (technical norms, hygiene norms, etc.). It is also beneficial to adapt it in order to reflect the specifics of individual market, the demand and expectations of customers. This involves also the container and the colour.

The image of the product should be adapted to the needs of demand as well. If for example the brand is not well accepted in the specific market it can be sold under another brand. This is valid also for the country of origin issue.

The services are also worth adapting. Each market embodies different claim periods, guarantee periods, range of claims and others. Some countries are keen on spending more money for above standard services and others just prefer lower price.

### *Price*

There are roughly two main factors influencing the price. These are external factors in a form of taxation, customs and foreign exchange rate and internal factors stemming from the company's activity (costs, pricing policy, strategic goals etc.).

From the external factors the most important for a company is the value added tax, corporate income tax and social and health insurance. These all influence the price of the product as they influence the costs.



It is also important to watch the development on the market, mainly the competitors. If competitors decrease the prices the company has to react in order to keep competitiveness. Two strategies can be applied. Firstly the company wants to be similar to competitors so the prices are set analogous to competitors. When we apply differentiation strategy we differentiate the prices from competitors. It can be set both at higher or lower level depending on what the company aims at.

There are several pricing strategies that company can implement when setting the prices of its product:

- Cost-plus pricing
- Break-even pricing
- Value perceived pricing
- Value added price
- Going-rate pricing
- Sealed-bid pricing

The cost plus pricing sets the price according to the costs generated by goods. These costs are calculated and then the profit spread is assessed. When applying Break-even pricing the price is set according to the desired return on investment in a planned time. The value perceived pricing methods takes the expected value of the products to the customers into consideration. Value added price is simply adding the value that is created by the company during the manufacturing process to finally set the price. When the price is derived from the prices of competitors (can be set higher or lower) it is called Going-rate price. The last pricing strategy is set in compliance with the price that has been offered by customers for the product in a form of bidding.

In the case of entering foreign markets the company can consider other categories of pricing policy (Boučková et al, 2003):

- Price standardisation (single image, the price is the same for all markets)

- Price differentiation (The price assessment is decided by the affiliated companies and is for every market different. However there is a risk of back selling to countries where the price is higher)
- Trade-off strategy (The price is the same in all markets but it is adjusted by certain coefficients to fit both the company and the market)
- Skimming strategy (The price is set differently in time. At first the product sells for a higher price and then when the substitutes come it is lowered.)
- Premium price (This is applied when selling a prestigious product. The customers perceive the product as a very luxury product that cannot be afforded by everyone)
- Penetration strategy (If the company wants to penetrate market in a short time it sets very low price and after reaching a specific market share it increase the price.)

It is also essential to mention the possibility of various additional price benefits in a form of discounts, types of financing, possibilities of leasing, providing allowances and others. It can be based on the quantity of products sold or single shot preferential treatments.

### *Place*

The key success of a market entering is to be in right time at right place and offer right quantities (Kotler, 1997). In the case of international business it is very difficult and costly to choose appropriate distribution channels and it affects also other areas of marketing mix. It is very important to choose reliable partners.

The company has basically two ways to deliver its product: directly and indirectly. Direct distribution is used when selling a very unique product or when selling heavy machinery. On the other hand for consumer goods it is more effective to choose the indirect way via intermediaries such as wholesalers, distributors or retailers. In pharmaceutical industry it is possible to exert both types depending on the characteristic of an order and customer. Usually the direct way is used when the order comprise of relatively large number of sold products.

There are basically three different types of distribution strategies the company can take (Machková, 2009):

- Intensive distribution (the company tries to reach as broad range of geographical area as possible)
- Selective distribution (the company chooses the distribution place according to a specific factors such as the size of turnover, type of a store or company's image, etc.)
- Exclusive distribution (the products are delivered in very limited number of places and only via a one specific partner, which makes the product very exclusive)

The distribution strategy is also influenced by other factors such as consumer's behaviour, level of competition, branch structure, market maturity or local legislation. The company should also consider whether it applies a distribution globally or if it adapts the strategy according to the specifics of a local market.

The most rapidly growing distribution channel in last times is the online distribution places managed via computers or mobile phones. It is essential then not to forget about these ways.

### *Promotion*

The basic goal of promotion is to let the customers know about the product, its price or its distribution channels. The main question is 'how?'. Promotion is an essential part both of introducing a product to the market and keeping or even increasing its reputation and it includes also dealing with new and existing customers. The objective is to broaden the awareness of the company and its products services and communicate that the products and services offer them value added.

The chosen promotion strategy is very dependent on the culture of the specific country. Different cultures understand the communication message differently, which may cause big troubles as it can be understood as something rude or unacceptable. The communication channels are also restricted by national laws. This is very common in case of tobacco, alcohol and also pharmaceutical products. Not only legal order should be followed but also the ethical standard should be respected and also the customer cannot be tricked.

There are basically three types of promotion strategies when entering foreign markets (Machková, 2009):

- Global strategy (mostly the same strategy for all markets with only slight changes such as translations, media chosen, etc.)
- Local strategy (fully adapted to local conditions by affiliates)
- Adaptive strategy (headquarters only sets the message and framework and affiliates adapt it to local conditions)

The company then can choose from three types of communication mix including different types of communication activities:

- Above the line (ATL; they are focused on advertisements in TV, radio, billboards, press, etc.)
- Below the line (BTL; focused rather on merchandising, sales support, direct marketing, etc.)
- On the line (OTL; orientation on internet activities)

Lately there is a clear trend of big shifting towards the BTL or OTL.

The communication mix is composed of five main areas that can be chosen by a company. It is not important to choose all but only the relevant and suitable ones. The right combination is then most effective. According to Hollensen (2007) these areas are:

- Advertising (newspaper, magazines, journals, directories, radio television, cinema, outdoor)
  - The main point is to inform the customer about a product or service with the objective of selling it. It should communicate the benefits, why to trust them and also the image of a company in general.
- Public Relations (annual reports, corporate image, house magazines, press relations, public relations, events, lobbying, sponsorship)
  - It can be defined as a systematic activity aimed at increasing the trust and creation of firm relationship with key public groups meaning building of a good reputation in general.

- Sales promotion (rebates and price discounts, catalogues and brochures, samples, coupons, gifts, competitions, fairs, shows)
  - When the customer is buying a product or service he can receive something extra for the purchase which stimulates his taste to repeated shopping.
- Direct marketing (Direct mail/database marketing, internet marketing, telemarketing, viral marketing, showrooms)
  - The aim of this type is to get in contact with the customer and inform about the product and services and at the same time create a more stable relationship. It is considered to be relatively more specifically targeted. The advantage is that it invokes the feedback and answer for the communication message. There are also no fees for intermediaries and a company gets a clearer image of what the customers want.
- Personal selling (sales presentations, sales force management, trade fairs and exhibitions)
  - In this case the representative of the company deals directly with the customers. That makes this tool extremely effective and powerful. However it is also very costly but for signing bigger contracts with important customers it is essential. It is the most personal type of communication mix where very close and loyal relationships with customers are made which allows the company more to understand the customers' needs.

There are several factors that affect the selection of specific types of communication mix. These can be market maturity, phase of product life cycle and mostly the needs, culture and education of target customers. Least but not last is the fact that it has to count with a specific budget that should not be overdrawn.

### *People*

It would be a mistake not to include all the people directly or indirectly connected with the product or service consumption process. These include employees, customers, management or knowledge workers that are responsible for the reputation of a company. The people are considered to be the most important of the whole marketing mix as argued by Anon (2011a)

and they represent very significant competitive advantage. The personal then has to take trainings and reach specific standards to maintain a high quality in order to contribute to the successful image of the company. They should be able to communicate with the customer in a professional way, they should have an aptitude and they should definitely have to know and understand what they are selling (Anon, 2011b). This should be kept in three areas of general training, sales training and customer service training.

### *Process*

This area studies the process, including procedures, mechanisms, flow of activities, of providing a service or consuming of a product. The company should be clear about whether the services are appreciated by customers, if they are delivered in time and if customers are informed in hand about the services (Anon, 2010). It should be the process that the customer is expecting and imaging when he decides to buy it.

### *Physical evidence*

This last element of marketing mix is not of insignificant importance. The customers, when they intend to buy a product or service, are expecting some qualities and characteristics of the place where the product or service is being sold. The environment should definitely represent the expectations of a customer to create a good image and reputation.

The 7 P's marketing mix is structured in Appendix 3 Picture 6: 7 P's Marketing mix.

### **vi. NPV**

The NPV stands for net present value and is broadly used for appraisal of a long term investment. It is the sum of time series of cash flow expressed in the value of today. Concerning the cash flows it is counted with both incoming and outgoing cash flows. The time value of money is brought by discounting the nominal future cash flows. It is important to estimate the discount rate correctly as the result is very dependent on this value. If the result is positive then it is worth to proceed with the investment.

$$NPV = \sum \frac{CF}{([1 + i])^n}$$

The formula is:

Where: CF= net cash flow

i=discount rate

n= number of years

The discount rate is usually calculated as a company's weighted average capital cost (WACC).

The formula is:

$$WACC = \frac{E}{V} * Re + \frac{D}{V} * Rd * (1 - Tc)$$

Where:

Re = cost of equity

Rd = cost of debt

E = market value of the firm's equity

D = market value of the firm's debt

V = E + D

E/V = percentage of financing that is equity

D/V = percentage of financing that is debt

Tc = corporate tax rate

The disadvantage is that this method does not consider the problem of uncertainty after the project decision and also the problem with the discount rate which is very sensitive for the result. The gap is seen also in the estimated predictions of cash flows which are not very likely to be the same in reality since the environment is very turbulent. This is connected also with the inflation rate which can vary every year.

#### **vii. Specifics of Business to Business (B2B)**

The number of customers is lower but they have bigger buying power and then they are more important to attract and keep. That is the reason for maintaining very tight relationships with customers. The purchase is often performed by professional buyers (Kotler and Keller, 2007).

Other important fact is that the demand is derived from the demand of consumers market. Nevertheless when the customers do not need the product then the demand decreases even by the companies. It is then vital to watch and stimulate also this market.

Other difference is the concentration of customers that is relatively higher which can have positive effect on the costs of distribution as there are larger orders delivered to less places.

The decision of purchase is also made having much more information as it is usual that the large purchases are agreed by the management of a company and sometimes by specialised teams of experts.

The market research is elaborated on smaller sample but representing bigger portion of customers. The negative factor is that the sample is usually very heterogeneous which can distort the evaluation of data.

#### **viii. Marketing mix in the scope of B2B**

As the customers are well informed and are specialists it is crucial to offer detailed and true information about for example technical, physiological or physical characteristics. The packaging is also very important but in a different way. It is not vital how it looks like but if it is practical and complies with the usage.

Concerning the pricing strategy the rebates and bonuses are used more often and especially when the order is for a higher number of products. The demand is less elastic but largely the lower price is a tool for keeping a customer too. The price is negotiated by a specially trained sellers and experienced buyers sometimes including even the higher management.

The distribution channels are dependent on the type of product. When selling machinery or a sub delivery of intermediate goods the direct distribution channel is used. Otherwise wholesalers or retailers are involved.

The field of promotion is probably the most extensive and different. The usage of ATL activities is very limited as they are useless. Probably the only meaningful activity is the publication of expert articles in scientific journals, which has a significant impact on customers.

On the other hand BTL activities play a very important role as there are fewer customers to ask and it is then less costly for the company. Most used is the personal selling where it is important to have a trained staff including also the area of customer care. Very common are also direct mailing, telemarketing, sales support activities, fairs and showrooms.



Lately the internet is being very popular. This involves advertisement banners, internet catalogues, internet pages, marketplaces and etc.

#### **ix. Segmentation of B2B**

It is important to divide the market into smaller parts, segments, on which it is easier to concentrate. The focus on these smaller segments is called targeting (Machková, 2009). The most important factors for targeting is the size of market, growth potential, level of competition or market attractiveness.

The segmentation of a market is not as it would be on the consumers market. The criteria are not demographic, socio-economic or behaviouristic. The important one is geographical where the company focuses its activities on customers in a specific geographical area. Second one can be the size. The goal is to divide the market into customer groups according to the size, number of employers, market share, size of sales or number of operations and so on. Other criterion is the technology where it is important what technological equipment does a customer have. After the segmentation the company chooses on which segment it targets its activities and effort, which makes it more efficient then.

#### **x. Competitors' analysis**

Firstly it is very important to even identify who are your competitors and whether they are direct or indirect ones. The main competitors are usually companies coming from one specific strategic group bearing a set of common characters such as price and quality level of products and services or breadth of portfolio. Members of other groups are secondary competitors (Kotler and Keller, 2007). The indirect competitors offer a similar product or service that can satisfy the same needs of your customers.

The positioning of your competitors is also relevant as the company should know whether the competitive brand is considered as high-quality, if it is regarded as luxurious or if customers feel the price is too high. Then these are compared to their product.

It is beneficial if you can identify the weaknesses and strengths of your competitors. The competitor's strengths represent a threat which needs to be eliminated and weaknesses opens a possibility how to be better and outperform the competitors.

Your competitors have specific goals that are essential to know if you want to compete effectively as they are connected with the strategy. The objective can be maximising of profit, growth or maximising of market share.

It is vital to estimate the market share of your competitors as you can employ a specific strategy then. There is often a market leader who can determine the market trend. Then there is a challenger which is the company with second largest market share and that fights for the share of the leader. The most companies are followers who just partly copy the strategy of the leader as they have an insignificant market share. There are also companies that are specialising on niche segments and are mostly not competitors as they are focused on different products (Machková, 2009).

## **b. Methodology**

There are basically two types of research: the qualitative and quantitative one. The qualitative is understood as a process that studies how individuals and groups see, understand and interpret world. Other explanation is that it is a research that does not use statistical methods and techniques. The researcher tries to see the specific point of interest from the perspective of a subject. Neither the number of variables is not reduced nor the relations between them. This decision is made by the subjects themselves. The preferred ways of this research are open and unstructured research plans and the analysis comes from stems from a large bulk of data regarding small number of individuals.

The differences between qualitative and quantitative research are mainly in the process description, relations, circumstances, situation, systems, people, interpretation, explanation, exploration, verification of assumptions, theory, evaluation and comparison of practises and program innovations.

The qualitative research studies a specific fact in an entity but also in details. Important part is also the involvement of people in the process of understanding and bringing in their own interpretations. The researcher is diving into the reality and becomes its part which causes the loss of objectivity. For the process of understanding it is positive but the problem arises when trying to pass this knowledge further. It is then essential to separate the results from individual persons and try to use it in general with a high level of objectivity.

The quantitative method is on the contrary focused on an empirical research of quantitative characteristics and procedures and relations between them. The purpose is to count the data and use statistical tools to explain the data and make a model delivering the explanation. The mathematical expression is very important. Quantitative research is widely used and one study showed that this type was used in two thirds of all sociological articles published in the top two American journals during 1935 – 2005 as presented by Hunter, Laura and Erin (2008). One of the advantages is the higher level of objectivity than the qualitative approach as the researcher is not directly involved in the subject matter. On the other hand it can miss a context a bit because of that. Generally there is a higher efficiency and it can be used for testing the hypotheses.

### **i. Research techniques**

#### ***Observation***

Observation can be more or less structured and one has to make sure which phenomena and how should the observation be done and recorded. It should not be done by anyone who does not know all the possible phenomena he could possibly encounter. It is very important not to bring in own assumptions, understandings or expectations.

#### ***Experiment***

It is also known as the queen of all research techniques. Firstly the definition of theoretical hypothesis has to be made and then the dependent variable must be selected and also other independent variables must be determined. Then the independent variables are changed in order to give values of the dependent variable.

#### ***Interview***

This technique is a key method when we are interested in opinions, attitudes or beliefs of people including employees, business partners, customers or management. It can be also more or less structured depending on to what extent we are sure about the topics we want to discuss. In case of time demanding interview with prepared successive questions it can be named an in-depth interview. However sometimes it is needed and beneficial to use the technique of group interview. The interviews and observations can be also with questionnaires placed into a superior group of surveys. The disadvantage is that these methods allow you to collect just a limited range of data.

## ii. Summary of references

In this dissertation paper there are several types of references used. These references include both primary and secondary data. The data has been retrieved from internal sources of company 'F' and also external databases that the company 'F' uses. There has been also done a basic research in the company in the form of interviews mainly with the head of business unit. Other sources include publicly available data on internet, in journals and other professional literature listed at the end of this paper. More specific data needed for the analysis of the market were provided by Národní referenční centrum (NRC, 2011)<sup>2</sup>.

---

<sup>2</sup> Národní referenční centrum is focused on: supporting the emergency bed care sector while implementing DRG as a refund mechanism, review of performance lists, using insurance houses' production data for monitoring quality of provided care and training and certification in the area of DRG coding. (<http://www.nrc.cz/en/home>)

## 5. Analytical part

This chapter applies the models introduced in previous chapter. They analyse the environment of mainly the Czech market but also of the Slovak market with the focus on company 'F' and product 'A'. The analysis is completed also with other important aspects that the models cannot capture.

It is important to remark that the markets of the Czech Republic and Slovakia are very similar and they differ only in few aspects. This phenomenon originates from the very long common history as these countries used to be one state till 1993. With respect to this fact the analysis will be focused mainly on the Czech market and only the differences are mentioned regarding the Slovak market.

### a. Company's vision, mission and objectives

The basic and general vision of the company 'F' is to help enhance the quality of medical care all around the world (Company 'F', 2004). To be more specific then the vision is to become an important supplier of the parts of medicine where the patients suffer from life endangering diseases, mainly in the area of Medication delivery, Renal and Bioscience. This vision is supported by three main shared values which are respect, responsibility and results which they commit to team members, patients, customers, partners, share holders and communities (Company 'F', 2004). The vision for anaesthetic market is in accordance with the overall vision and includes the vision of being a competitive and important player on this market offering variety of high quality inhalation anaesthetics involving high recognition by the market.

The mission is to use its experience in manufacturing of medical devices, medical agents, drugs, biotechnological preparations for treatment that will mean a significant difference in the patient's lives (Company 'F', 2004). They introduce new technologies to the market which will fight successfully the diseases that occur with increasing time much more often in the aging population and are thus more consequential. Company 'F' also tries to increase the health and well-being of citizens, increase the quality of environment, provide free drugs where they are needed and support public projects. The product 'A' mission includes the introduction of the first generic product 'A' to the market and support the sale of other

already marketed inhalation agents. They want to target all decision makers and penetrate hospitals with vaporizers.

The general objectives follow from the vision and mission. Company 'F' ensures in all parts of the world as high quality treatment as possible and via its products and services to help thousands and thousands of people suffering from severe diseases including haemophilia, cancer, immune system disorders or renal disorders every day. The objectives for product 'A' are both short term and long term. The short term include the successful launch of product 'A' on the market and to reach a significant share. This includes also increased share of other already marketed inhalation agents. It involves successful penetration of hospitals and other medical establishments with vaporizers in order to provide inhalation agents. The long term target is to increase the share continuously in order to increase the sales of all the inhalation anaesthetic agents. The long term aim is to become a very strong competitor for leading competitor 'B' and to become a company that is recognised as strong in area of all inhalation anaesthetics.

## **b. PEST Analysis**

### ***Political and legal factors***

The pharmaceutical industry is highly regulated by the government. One of the reasons is the fact that the government is the major payer of the health care and drugs. Generally there has been a high pressure on lowering the expenditures on health care and government is aiming at transferring the costs on pharmaceutical companies by attempting to lower the prices and reimbursement. There is also a more significant support of generic drugs which is proved by the increase in use of generics by value in 2009 in the Czech Republic by 4.8 % and in Slovakia by 8 %. The total share in value is respectively 30 % (Anon, 2010) and 36 % (Businessmonitor, 2011).

The political environment has been very turbulent during last years in the Czech Republic as last government was overthrown and replaced by caretaker government for almost two years. This has had a negative impact on the whole policy as the laws and reforms could not be enforced. The government of these days is also very unstable and faces scandalous cases which have very shocking dimensions. The corruption is also relatively high and the lobby of

big companies is very strong. This all partly prevents the right steps that should be made in order to support the welfare of state and the balanced state budget.

This all is influenced also by the ministry of health which faces changes even more often. There have already been 14 ministers of health (Wikipedia, 2011) since the formation of the Czech Republic in 1993. This means that one does not last more than one and half year which makes it impossible to implement needed reforms and improvements. Slovakia shows a bit more stable environment but still enjoyed 10 ministers since 1993. Nevertheless these countries witnessed significant number of important reforms.

Lately the Czech medical doctors did organise a national strike to increase their very low wages and they have been successful. The government promised to increase the wages which has been implemented but in some cases this issue still has not been resolved fully.

The financial crisis has put the government budgets under a huge pressure which results in significant governmental reductions in the budget including the area of national health system. Slovakia implemented the duty to pay for each visit of a doctor and also for a drug prescription. This was then cancelled in 2007 (Novinky.cz, 2007). In the Czech Republic this started to be valid later but has survived until nowadays.

The pharmaceutical market is also regulated by numerous legislative acts including various areas such as civil code, commercial code, labour code, consumer protection law, tax and financial reporting standards and also regulations of European Union (EU) that were implemented after the accession to the EU. The most important is the Medicament law 378/2007 Sb. that includes also the EU regulations. Very important is the implementation of law 2/2009/FAR which regulates the procedure of pricing of medicaments and food for special medical purposes. The price order is published on the official web pages of Ministry of Health<sup>3</sup>.

Another important law, 48/1997 Sb., is related to the public health insurance which is the main source of financing the health care including drugs. Ordinance number 54/2008 of

---

<sup>3</sup> Ministry of health official web site: <http://www.mzcr.cz/>

means of prescription of medicaments enables the pharmacists to change the medicament having the agreement of patient for a generic substitute.

There are several institutions that are responsible for a strict control and regulation of pharmaceutical companies. The most important institutions are in the Czech Republic SÚKL (Státní ústav pro kontrolu léčiv) and in Slovakia similar ŠÚKL (Štátný ústav pre kontrolu léčiv). Firstly the company has to receive licence for manufacturing the drug which is granted on the basis of proof of efficacy, safety and effectiveness. These institutions are also granting then needed registration for drugs. It is taken as a medical oriented regulation that allows usage of a specific drug which is initiated by scientific testing and assessing of a drug including own investigation (Zych, 1993). It is considered to be the basic regulation of drug consumption. These institutions also decide on whether the drug is registered as Rx drug or OTC drug<sup>4</sup>. They also have supervision over an advertisement that is not communicated via radio or TV.

Another regulation is the setting of maximum price that can be realised. There is also a maximal surcharge for distributors. For these decisions is responsible the Ministry of Finance. The maximal surcharges are in Table 1: Maximal surcharges - Czech Republic (CZK) and Table 2: Maximal surcharge – Slovakia (EUR). The surcharges are digressive which lowers the final price and thus saves costs. The ceiling price can be set based on a reference act where the price is set as a price of three lowest prices in other states of EU. Very important role plays also the Ministry of Health that is accountable for the assessment of reimbursement. It sets the height and mean of reimbursement.

Table 1: Maximal surcharges - Czech Republic (CZK)

Zone	Base from	Base to	rate
1	0.00	150.00	36%
2	150.01	300.00	33%
3	300.01	500.00	24%
4	500.01	1000.01	20%
5	1000.01	2500.00	17%
6	2500.01	5000.00	14%
7	5000.01	10000.00	6%
8	10000.01	9999999.00	5%

Reference: Ministry of health, 2011a

<sup>4</sup> Rx drugs are given only with a prescription unlike OTC (over the counter drugs) that can be purchased directly.



Table 2: Maximal surcharge – Slovakia (EUR)

price limit excluding tax	producer price limit	distributor		pharmacy		sum		zone interval
		basic sum	surcharge	basic sum	surcharge	basic sum	surcharge	
0	0	0	14,10%	0	32,90%	0	47,00%	od 0,00 do 2,66
3,91	2,66	0,37	11,10%	0,87	25,90%	1,24	37,00%	od 2,67 do 5,31
7,53	5,31	0,67	8,10%	1,56	18,90%	2,23	27,00%	od 5,32 do 7,97
10,92	7,97	0,88	5,10%	2,06	11,90%	2,94	17,00%	od 7,98 do 13,28
17,12	13,28	1,16	3,30%	2,7	7,70%	3,86	11,00%	od 13,29 do 23,24
28,2	23,24	1,48	2,70%	3,46	6,30%	4,94	9,00%	od 23,25 do 39,83
46,26	39,83	1,93	2,40%	4,51	5,60%	6,44	8,00%	od 39,84 do 73,03
82,13	73,03	2,73	2,25%	6,37	5,25%	9,1	7,50%	od 73,04 do 165,97
182,04	165,97	4,82	2,10%	11,25	4,90%	16,07	7,00%	od 165,98 do 331,94
359,63	331,94	8,31	1,95%	19,38	4,55%	27,69	6,50%	od 331,95 do 663,88
713,15	663,88	14,78	1,80%	34,48	4,20%	49,26	6,00%	viac ako 663,88

Reference: Ministry of health, 2011b

There are basically two main ways of health expenditure regulation: supply and demand measures. To the demand measures it is important to mention the fixing of budgets for doctors that has to be fulfilled. Otherwise the sanction is present. This partly favours usage of generics.

To the demand measures belongs positive or negative listing of drugs. When the drug is on a positive list it is partly paid by the insurance companies and if it is on negative it is not covered. This is crucial for the company as it is very probable that if the drug is on negative list it will not be purchased.

### *Economic factors*

The most important and most used indicator of economic power is the Gross domestic product (GDP). It is beneficial to look at both absolute figures and also at growth percentage. This suggests the company how rich is the country and what it can possibly buy. The growth then tells us whether it will be more or less in the future. As the health expenditures are mainly paid by the state it is even more important for the pharmaceutical companies to watch these features.

Both the Czech Republic and Slovakia shows similar changes in GDP over time. Before the world economic crisis the growth was stable and high but sank to even negative numbers during the crisis. Both countries have already recovered and have come back to growth again. However the pharmaceutical industry is not so much dependent on the economic cycles. It slowed down but still recorded positive growth during all periods which was above average.

The rate of inflation is another of the basic indicators of economies. The development has experienced little fluctuations but is seen as relatively stable. The long term target is stated at 2 %. The Slovak Republic may be in a more difficult position in maintaining the target as it is a member of Euro zone and thus has to obey the monetary policy of European Central Bank (ECB). The inflation rate is important when looking at the prices in the future as it represents the time value of money. This fact is resolved by the discount rate for NPV model.

The unemployment rate was decreased by massive GDP growths during the last few years. However the economic crises depressed the economic growth which resulted in huge increase of unemployment even to the long term maximums. The unemployment is worse in Slovakia. Nowadays the unemployment rate is decreasing again. Nevertheless for the company it could be easier and cheaper to find workforce even though the unemployed are mostly unskilled. The problem is also seen in disparities between the education system outcomes and the needs of industries.

The discount rate is different in the countries because Slovakia is the member of the Euro zone and has to obey the discount rate set by ECB. The trend in both countries is the same during last years. The discount rates have been decreasing to support the economy during recession. This represents a chance for companies as they can take cheaper loans and gain a more efficient financing of investments.

The foreign exchange rates are expected to fall in the case of Czech Republic meaning appreciation of the Czech Crown. This implicates cheaper buying from abroad. It also influences negatively the consolidated financial statements of foreign owners of the subsidiaries. In Slovakia the prognosis shows the appreciation of Euro which is similar to the case of Czech Crown.

Very important is also the indicator of government debt related to the height of GDP. Almost all countries are experiencing problems to reach balance of expenditures and incomes. This puts great pressures on cost cuttings so the company should be aware of reduced governmental expenditures which can result in lower reimbursements, lower maximal prices and surcharges. On the other hand the promotion of cheaper generic drugs is favoured.

As the companies want to control their costs it is important to also look at the development and prognosis of average wages. There is a trend of increasing wages every year which has to be anticipated when creating a plan of labour costs. The wages are still relatively lower compared to developed countries but the relatively more rapid increase forecasts diminishing of the wage differences.

The development and prognosis of all the important macroeconomic indicators in both countries is captured in Table 3: Macroeconomic indicators: Czech Republic and Table 4: Macroeconomic indicators: Slovakia.

**Table 3: Macroeconomic indicators: Czech Republic**

Czech Republic	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
GDP (bil. CZK)	2 630,0	2 809,0	2982	3 055,0	2928	2 996,0	3052	3121	3224	3352
GDP growth	6,3	6,8	6,1	2,5	-4,1	2,3	1,6	2,3	3,3	4
GDP per Capita (CZK)	263 000	280 900	298 200	305 500	292 800	299 600	305 200	312 100	322 400	335 200
Unemployment rate	8,96	8,13	6,62	5,44	7,98	9,01	8,7	8,1	7,7	7
average wage (CZK)	18 992	20 219	21 694	22 691	23 488	23949	24600	25600	26624	27689
Inflation	1,9	2,5	2,8	6,3	1,0	1,5	2,1	2,3	3	1,7
CZK/EUR	29,784	28,343	27,762	24,942	26,445	25,290	24,2	23,7	22,7	22,4
CZK/USD	23,947	22,609	20,308	17,035	19,057	19,111	17,767	17,767		
government debt/GDP	-3,6	-2,6	-0,7	-2,7	-5,8	-4,7	-4,3	-3,5	-2,9	-1,9
Discount rate	1,00	1,50	2,50	1,25	0,25	0,25				

References: Czech National Bank ([www.cnb.cz](http://www.cnb.cz)), Ministry of Finance ([www.mfcr.cz](http://www.mfcr.cz)), National Bank of Slovakia ([www.nbs.sk](http://www.nbs.sk)), OECD ([www.oecd.org](http://www.oecd.org)), Finance ([www.finance.cz](http://www.finance.cz)), CZSO ([www.czso.cz](http://www.czso.cz)), Ministry of Finance ([www.finance.gov.sk](http://www.finance.gov.sk)), Statistical office ([www.statistics.sk](http://www.statistics.sk))

**Table 4: Macroeconomic indicators: Slovakia**

Slovakia	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
GDP (mld. EUR)	49	55	62	67	63	66	70	76	81	88
GDP growth	9,20%	11,69%	11,75%	8,86%	-5,90%	4,25%	7,09%	7,34%	7,76%	7,79%
GDP per Capita (EUR)	6 931	7 742	8 652	9 418	8 862	9 238	9 893	10 619	11 443	12 334
Unemployment rate	16,16%	13,31%	11,02%	9,57%	12,10%	14,27%	13,60%	12,97%	12,18%	11,48%
average wage (CZK)	573	623	669	723	745	770	798	844	895	954
Inflation	2,71	4,49	2,76	4,60	1,62	0,96	3,52	3,09	3,67	3,70
EUR/USD	1,24	1,26	1,37	1,47	1,39	1,33	1,36	1,30	1,25	1,22
government debt/GDP	-0,61	-1,35	-0,71	-1,42	-5,09	-5,56	-2,49	-1,52	-0,88	
Discount rate	3,00	4,75	4,25	2,50	1,50	1,25				

References: Czech National Bank ([www.cnb.cz](http://www.cnb.cz)), Ministry of Finance ([www.mfcr.cz](http://www.mfcr.cz)), National Bank of Slovakia ([www.nbs.sk](http://www.nbs.sk)), OECD ([www.oecd.org](http://www.oecd.org)), Finance ([www.finance.cz](http://www.finance.cz)), CZSO ([www.czso.cz](http://www.czso.cz)), Ministry of Finance ([www.finance.gov.sk](http://www.finance.gov.sk)), Statistical office ([www.statistics.sk](http://www.statistics.sk))

### *Social and cultural aspects*

For common goods it is essential to watch the behaviour of final customers in order to anticipate the demand for the products. In the case of product 'A' it is not so as it is a drug used by medical doctors and nurses only so its demand is even not derived from the final consumers demand. It is then not needed even to analyze the cultural aspects of the nations precisely. It is necessary only from the point of view of influencers on purchase of the drug, especially which techniques to use to persuade the influencers to choose product 'A'. Both the Czech Republic and Slovakia are nations that have relatively stable social environment. From the values of Hofstede's cultural dimensions it can be deduced that the people are thinking of only a near future, they like when they are sure about things, they respect men more and are based on solid values, they are a bit more individualistic then collectivistic and they have respect for authority (Hofstede, 2009).

On the other hand the consumption is dependent on the number of anaesthetic operations per year. The overall trend in the demographic development is the aging of population. This is evident from the Table 5: Demographic development.

**Table 5: Demographic development**

Demographic development		1989	1999	2009	2019	2029	2039	2050
Czech Rep	0 - 19	3 071 406	2 451 737	2 087 665	2 121 440	2 113 904	1 972 330	2 074 754
	20 - 64	5 959 046	6 385 447	6 733 275	6 413 975	6 179 558	5 932 084	5 380 543
	65 +	1 271 637	1 407 514	1 548 004	2 025 264	2 240 063	2 483 261	2 838 522
Slovakia	0 - 19	1 759 536	1 548 948	1 204 193	1 082 485	1 030 730	913 820	877 482
	20 - 64	2 950 589	3 224 958	3 547 186	3 509 658	3 275 782	3 087 536	2 647 202
	65 +	524 523	602 557	654 366	850 876	1 056 981	1 171 099	1 392 342

Reference: OECD, 2011

This phenomenon has a great impact on the consumption of drugs and on the overall expenditures on health. This is evidenced by the increased ratio of health expenditures on GDP and also by the increase in absolute number of health expenditures showed in Table 6: Total health expenditures. This ensures the companies having an opportunity to achieve a relatively stable and warranted growth.

Table 6: Total health expenditures

Health expenditures	2005	2006	2007	2008	2009
CR					
total expenditures (mil. CZK)	218 774	226 810	241 935	264 520	286 611
percentage on GDP (%)	7,22	7,04	6,84	7,17	7,9
SK					
total expenditures (mil. EUR)	2,421.86	2,556.81	2,691.87	3,093.04	3410
percentage on GDP (%)	7,2	7,0	7,3	7,7	8,0

Reference: UZIS (Ústav zdravotníckých informací a statistiky) [www.uzis.cz](http://www.uzis.cz), OECD, 2011, Health Policy Institute, 2009

### *Technological factors*

This area is very important for company 'F' as it is in majority an original drugs inventor and only a minor part of business represents the generics manufacturing. Generally speaking the technological demands has been growing rapidly for last decades. The proof is the increased cost for developing a drug that rose from 149 million EUR in 1975 to about one billion EUR nowadays (ECORYS, 2009a).

The pharmaceutical industry also holds the first place in R&D demands with the R&D sales ratio of 16.2 % (EFPIA, 2010). The manufacturing technology also needs a very high technological level as there are strict and precise procedures that the companies have to obey as it is implemented in the law. These are the reasons why the companies have to generate higher returns. They have to fund these huge investments. This is helped by the patents and exclusivities which enable to sell the products at higher prices.

The technological level of the Czech Republic is higher than the one of Slovakia and both have improved much during last years. The Czech Republic can be ranked as a developed country in this aspect. Nevertheless the most developed countries still show much better results. The R&D expenditures in the case of the Czech Republic reach 1.5 % but concerning Slovakia only around 0.5 % of GDP. However the target stated in the Lisbon Treaty is 3 % of GDP but almost none of the countries fulfil this criterion. The Czech Republic has also applied for 162 patents in 2007 whereas Slovakia only for 42. Slovakia also falls short in the number of researchers with 19 814 in 2008 compared to Czech 44 240. The development of R&D expenditures, number of researchers and patents applications shows the Table 7: R&D expenditures, Researchers, Patents.

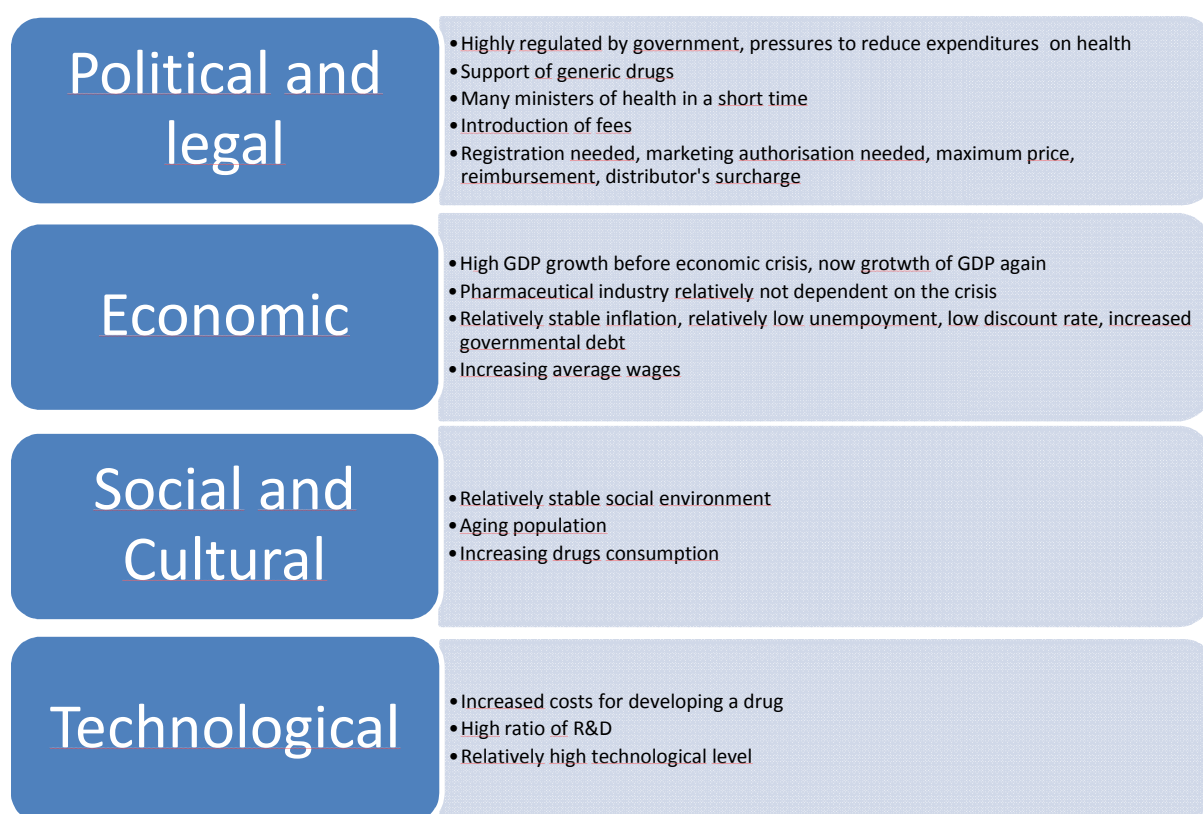
Table 7: R&D expenditures, Researchers, Patents

R&D	2005	2006	2007	2008	2009
<b>Czech Republic</b>					
R&D expenditure (% GDP)	1.41	1.55	1.54	1.47	1.53
Number of researchers	37 542	39 676	42 538	44 240	
Total patent applications	106.42	150.21	162.31		
<b>Slovakia</b>					
R&D expenditure (% GDP)	0.51	0.49	0.46	0.47	0.48
Number of researchers	17 526	18 816	19 375	19 814	21 832
Total patent applications	40 754	39.56	42.25		

Reference: Eurostat, 2011

The main aspects of the PEST analysis are stated in Figure 1: PEST analysis - main factors.

Figure 1: PEST analysis - main factors \*



\* The Czech Republic and Slovakia are very similar to each other so the outcomes of the PEST analysis are valid for both countries they differ only slightly in some aspects: Slovakia shows higher business surcharges, higher GDP growth, lower average wage, higher unemployment rate and higher discount rate. On the other hand the Czech Republic has fees and is of a higher technological level. The differences are not of a major importance for following estimations.

### i. Country's pharmaceutical business ratings

It is important to compare the business environment for pharmaceutical companies also with other countries to see the attractiveness from an objective point of view. The rating has been elaborated by Business Monitor International and is stated in Table 8: Ranking of pharmaceutical business environment.

Table 8: Ranking of pharmaceutical business environment<sup>5</sup>

	Rewards			Risks			Pharma Rating	Regional Rank
	Industry Rewards	Country Rewards	Rewards	Industry Risks	Country Risks	Risks		
Poland	67	63	66	53	73	61	64.0	1
Czech Republic	60	67	62	63	70	66	63.4	2
Romania	60	60	60	57	64	60	59.8	3
Hungary	57	63	58	53	71	60	59.1	4
Turkey	63	60	63	47	63	53	58.8	5
Russia	67	67	67	40	50	44	57.5	6
Greece	53	67	57	53	66	58	57.3	7
Slovakia	50	57	52	63	67	65	56.9	8
Ukraine	63	60	63	40	40	40	53.5	9
Slovenia	37	57	42	67	74	70	52.8	10
Estonia	33	63	41	63	76	69	51.9	11
Bulgaria	40	67	47	53	60	56	50.3	12
Kazakhstan	50	50	50	43	51	47	48.6	13
Serbia	40	60	45	50	54	52	47.6	14
Lithuania	20	63	31	57	70	62	44.9	15
Croatia	30	60	38	53	59	56	44.8	16
Latvia	17	63	28	60	72	65	43.0	17
Belarus	27	67	37	43	52	47	40.7	18
Moldova	30	53	36	40	48	43	38.8	19
Uzbekistan	30	50	35	37	45	40	37.1	20
Regional Average	45	61	49	52	61	56	51.6	

Reference: Business Monitor, 2011

From the table it is clear that Czech Republic is seen as a more attractive environment to operate in than Slovakia's environment. Nevertheless both countries are definitely attractive to enter as they take the second and eighth rank. The Czech Republic used to be even at the

<sup>5</sup> Scores out of 100, with 100 the highest.

top in 2010. The uncertainty of governmental steps and lower pharmaceutical sales has taken the first rank (Business Monitor, 2011).

The Czech Republic's weakest link is the country's reward but still embodies above average numbers. The negative factor is the low rate of population increase. On the other hand the aging population should help the health care spending if the government is able to cover the cost. The relatively high urbanisation enables better access to healthcare too.

This area is also the weakest for Slovakia which even shows below average number. It is mainly the negative population growth and relatively high percentage of population living in rural areas. In other criteria it reaches above average numbers but lower than the Czech Republic. The second weakest is the country risk.

## ii. Porter's Five Forces Model

### *Threat of entry of new competitors*

This threat can be considered as relatively low. The pharmaceutical industry is based on modern and sophisticated technologies that require very high investments as mentioned before. On the other hand the sector achieves high value added and shows relatively high ROI and profit margins which attracts the entrepreneurs.

The costs are relatively higher also because of a strict regulation of state mentioned before too. There are significant fees for patents, registration and marketing authorizations. The fee for registration varies from 80 to 120 thousands EUR across Europe as stated by Golikeri (2010). The strict rules for manufacturing increase the costs as well. On the contrary the relatively immune growth of pharmaceutical industry is a great lure. The growth of pharmaceutical industry and industry as a whole is stated in Table 9: Industry indexes.

**Table 9: Industry indexes**

	2005	2006	2007	2008	2009
<b>CZ</b>					
Industry index	103,9	108,3	110,6	98,2	86,4
Pharmaceutical goods and preparatives production index	119,1	107,7	104,5	100,7	89,6
<b>Slovakia</b>					
Industry index	100,8	115,6	117,0	103,9	
Pharmaceutical goods and preparatives production index	113,0	114,0	108,6	106,0	

Reference: CZSO ([www.czso.cz](http://www.czso.cz)), SSO ([www.statistics.sk](http://www.statistics.sk))



Specifically for the product 'A' the barrier to entry is represented by the need of providing of vaporisers that are relatively expensive. The difficulty is also in the motivation to undergo a procedure of replacing the already used vaporiser for different one.

It is also needed to build a stable and influential relationship with reliable distributors, state authorities, hospital management, pharmacists, doctors and others. This takes some time to realise and represents thus a big barrier. The successful companies have to reach also considerable economies of scale which puts a strain on a large capital investment. The costs of marketing and sales also take a significant part of the sales. For the original drug makers it amounts the largest cost (ECORYS, 2009b).

Very demanding is also the manufacturing process which in the case of generic companies stands for the largest cost item reaching 51 % of all costs (ECORYS, 2009b). This particular industry is also more demanding for the labour costs as the average wages of pharmacologists are significantly higher than the average wages in general. The height of the wages shows Table 10: Average wages of pharmacologists.

**Table 10: Average wages of pharmacologists**

	2007	2008
<b>Slovakia</b>		
average wage (EUR)	985	1000,16
Average wage (CZK)	24093,1	24463,9
<b>Czech Republic</b>		
Average wage (CZK)	34 108	37 819

Reference: SARIO, 2009; UZIS ([www.uzis.cz](http://www.uzis.cz)), CNB ([www.cnb.cz](http://www.cnb.cz))

### ***Threat of substitutes***

The threat of substitutes concerning the original drug makers is relatively low during the protected life of product by patent which can reach up to 20 years. During this period another drugs substituting the protected one cannot be sold. After, the generics are introduced to the market at lower prices and the original drug loses its strong positions. Sometimes happens that the selling is ceased completely. Regarding the generic drugs the threat is moderate. It depends whether the generic enters the market first or not. If yes it gains the advantage of a first mover and becomes very strong on the market. There is also a

risk of counterfeit drugs (EFPIA, 2005) but in the case of the Czech Republic and Slovakia the risk is only a little as there are strict controlling procedures present.

Concerning the product 'A' there are several substitutes represented by all the inhalation anaesthetic drugs currently present on the market under the group signed N01AB according to SUKL classification. Some are also sold by company 'F'. Product 'A' is though the most modern and effective one. It is a generic of already existing original drug sold by competitor 'B'.

### *Power of suppliers*

This force can be ranked as low. One fact is that the manufacturing companies often contracts two or more suppliers for key inputs and ensures regular supplies and also lower prices.

Another fact is the very high concentration of the industry of drug manufacturers. In Europe the top 10 % of pharmaceutical companies account for 73 % of total sales (ECORYS, 2009a). This reduces the chances of suppliers to deal better conditions considerably.

### *Power of buyers*

This power is changing during the last years. To be more specific it is increasing. It is caused by the need of cutting the costs of health system. In the Czech Republic and Slovakia the state is the one who is paying for the drugs. To be precise the people pays health insurance which is then used for funding health care. That's why there are much higher pressures on reducing the prices of drugs via the strict regulations.

On the other hand this power is decreased by the fact that state and treatment receivers are not the ones who decide on the type of treatment or on the type of drugs. It is the doctors and partly the pharmacists. So if a patient is given a recipe for a specific drug he just has to buy it. The factor decreasing the buyer's power is also the aging population and more frequent illness occurrence in the population. If someone is ill he simply has to be treated and take medicaments in order to become healthy or sometimes to even survive so the need of drugs becomes vital.

In the case of over the counter (OTC) drugs the situation is different. Here the demand is more sensitive and this sensitivity is even increased as the buyers are more informed and are

also experiencing the downturn in what they can afford to buy which reduces the prices too (Verbigena, 2005).

Nevertheless in spite of these increased powers of buyers the average prices of drugs are still rapidly increasing. This shows the Table 11: Average price of a drug unit.

Table 11: Average price of a drug unit

Average price of drug unit	2005	2006	2007	2008	2009
CZ (CZK)	175	184	196	229	256
SK (CZK)	121	136	148	162	156

Reference: SUKL ([www.sukl.cz](http://www.sukl.cz)), SSO ([www.statistics.sk](http://www.statistics.sk)), CNB ([www.cnb.cz](http://www.cnb.cz))

### *Rivalry among existing competitors*

As the industry offers significantly higher ROIs and growths it attracts many competitors. The return of assets of Fortune 500 pharmaceutical companies reached 10 % while industries average only 4.7 % (ECORYS, 2009a).

The counterpart is the very high concentration in the industry mentioned above which is the result of several mergers and acquisitions. In recent years companies have to pay attention also to the danger of parallel trade. The value was estimated to be 4.4 billion EUR (EFPIA, 2010).

There is also a phenomenon of first mover advantage that the companies gain when entering the market first as they are protected by patents (Verbigena, 2005). And this advantage can be even levelled up by possible formal blocking of development of competitive products (ECORYS, 2009a).

In the case of product 'A' the danger of parallel trade is relatively very low but the possibility to block the development and sales of this generic competitive product can be realized by the competitor 'B' already operating on the market that is currently benefiting from the first mover advantage. There is also another company offering substitutes which makes the competitive environment relatively tough and company 'F' would have to fight to get through.

The main outcomes of this analysis are stated in Figure 2: Porter 5 Forces - main outcomes.

Figure 2: Porter 5 Forces - main outcomes\*

Threat of entry	<ul style="list-style-type: none"> <li>• Relatively low – high investments required</li> <li>• fees for patents, registration and marketing authorizations</li> <li>• Vaporizers needed, need of influential relationships</li> <li>• Demanding development and manufacturing of drugs</li> </ul>
Threat of substitutes	<ul style="list-style-type: none"> <li>• Low to moderate</li> <li>• Patents</li> <li>• Danger of counterfeit drugs</li> </ul>
Power of suppliers	<ul style="list-style-type: none"> <li>• Low</li> <li>• Two or more suppliers for key inputs</li> <li>• High concentration of drug manufacturers</li> </ul>
Power of buyers	<ul style="list-style-type: none"> <li>• Increased but still low power</li> <li>• Treatment receivers are not the decision makers</li> <li>• Illness must be treated</li> <li>• OTC drugs – bigger power</li> </ul>
Rivalry	<ul style="list-style-type: none"> <li>• Moderate</li> <li>• High concentration</li> <li>• High ROI</li> <li>• First mover advantage</li> </ul>

\* The outcomes are valid for both countries as they do not show any significant difference that would influence the company's further steps.

### iii. Segmentation and Dynamics of pharmaceutical market

For the company 'F' it is vital to watch both in which way the market develops and how quickly. Then it can focus just on specific areas it wants to enter or intensify.

#### Market Segmentation

At first it is important to state the total amount of sales realised by the pharmaceutical sectors regarding drugs. The Czech Republic has definitely higher absolute amount of sales than Slovakia with the value of 80.303 billion CZK compared to 1.66 billion EUR (approximately 40 billion CZK). On the other hand the percentage of pharmaceutical sales on GDP is lower in the Czech Republic with 2.19 % compared to 2.47 % in Slovakia. The development of pharmaceutical sales is clear from Table 12.

**Table 12: Pharmaceutical sales**

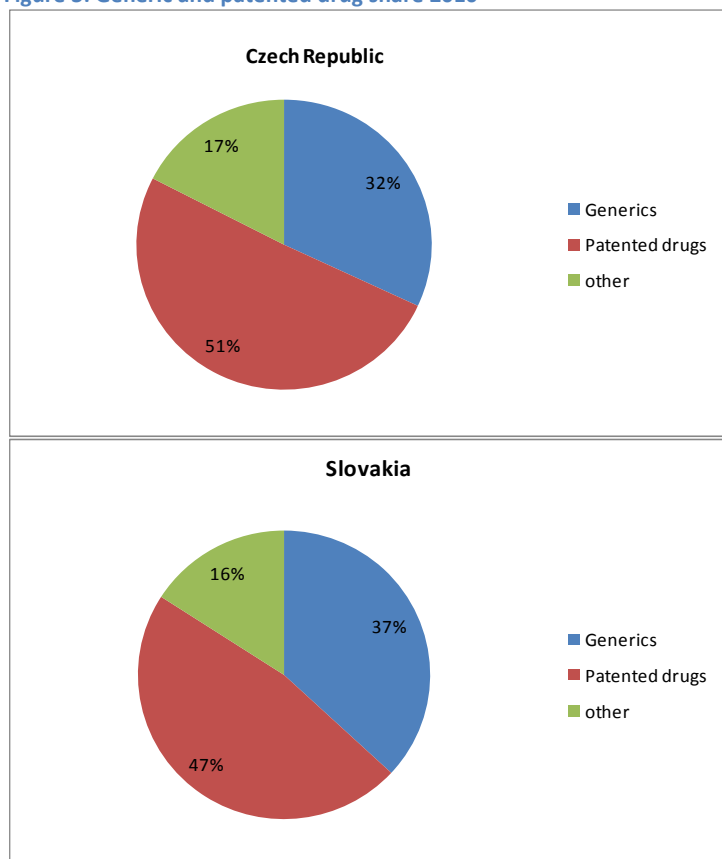
<b>Czech Republic</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
bn CZK	67,157	72,752	79,75	80,303
% of total health expenditure	28,12	29,01	30,51	29,83
% of GDP	1,9	1,97	2,2	2,19
<b>Slovakia</b>				
bn EUR	1,37	1,52	1,61	1,66
% of total health expenditure	32,25	30,79	31,6	31,75
% of GDP	2,5	2,39	2,5	2,47

**Reference: SUKL ([www.sukl.cz](http://www.sukl.cz)), UZIS ([www.uzis.cz](http://www.uzis.cz)), Business Monitor, 2011**

These pharmaceutical sales can then be divided generally according to three criteria. These include the way the drug is purchased, the form of patent protection and division according to internationally recognised anatomical-therapeutic-chemical (ATC) classification system.

The division regarding the patent protection includes generic and original drugs whose share has been mentioned partly in previous parts. It is important to state that the share of generic is higher regarding volume terms but lower when looking at value terms. It is because of the lower prices of generic drugs compared to original ones. The shares of individual types of drugs are showed in Figure 3. For company 'F' it is relevant to consider both generic and patented drugs share as it is going to introduce generic drug to an already sold patented drug.

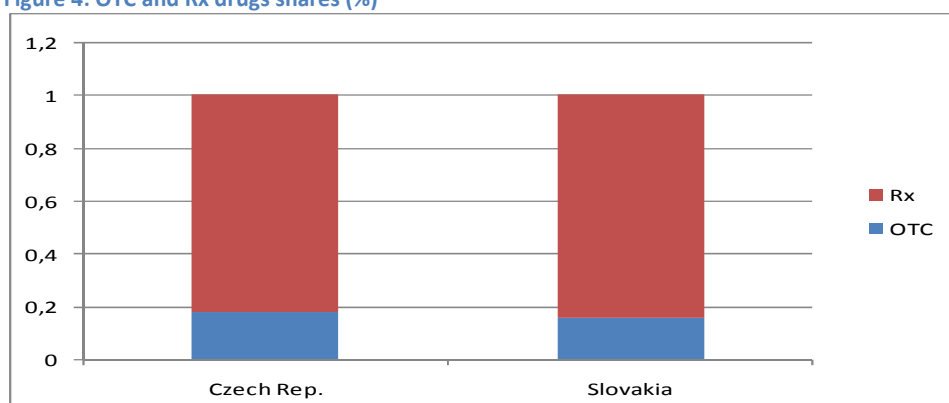
Figure 3: Generic and patented drug share 2010



Reference: Business Monitor, 2011

The other division is also important as the company 'F' is launching product 'A' that belongs to the Rx drugs area as it is dedicated only to professionals. The Rx drugs represent the vast majority of the market in both countries. The shares are stated in the Figure 4 below.

Figure 4: OTC and Rx drugs shares (%)



Reference: Business Monitor, 2011

The last division is the most important one for the company 'F'. Each drug belongs to one of the ATC groups of drugs related to one of the areas the diseases affect. The shares of all ATC

groups are stated in diagram. The product 'A' falls in the group N (Central Nervous System), more specifically to N01AB – the anaesthetics halogenated hydrocarbons. The group N is the second largest group in the Czech Republic and third largest in Slovakia speaking about volume and value. The trend is positive in the case of value but slopes down when we look at the volume terms. Nevertheless the volume terms rise in case of active substance contained also in the product 'A'. The values for the N group and for the subset N01AB is reflected in Table 13.

Table 13: ATC classification: N group sales

CZ	2005	2006	2007	2008	2009
Number of packages (mil)	63,7	58	62,5	57,7	56
Value (mil CZK)	7 887	7 434	8 538	9 147	9 931
SK*					
Number of packages (mil)					
Value (mil CZK)					

\*not available

Reference: SUKL ([www.sukl.cz](http://www.sukl.cz))

The other very valuable information lies in the knowledge of which companies are present in this subset N01AB. This group is formed basically by three mostly used active substances and these are product 'A', isoflurane and desflurane. Halothane also used to be present but nowadays it is not used any more. These are the main substances that are used during anaesthesia delivered via inhalation. Isoflurane is offered by all three companies present in this area. These include Competitor 'C' with Isoflurane, Competitor 'B' with Forane and company 'F' with Aerrane (not present in Slovakia). Desflurane is available only from company 'F' as a drug Suprane. Product 'A' is offered nowadays only by Competitor 'B' that sells Sevorane. The market shares both in value and volume terms of each company are present in Table 14. From the table it is clear that market of Product 'A' is dominated by Competitor 'B' but it embodies stable growth both in volume and value terms. The negative factor is that the price is constantly diminishing. Let this trend continue it may cause a slump in sales in the future. The market shares for Slovakia are only estimated as the data is not available. The estimation is, due to the very similar market, based on the values of the market of the Czech Republic.

Table 14: Anaesthetic agents - market shares

**CZ**

ATC	Active substance	Drug	Owner	share value	share volume
N01AB06	Isoflurane	Aerrane	Baxter	1,03%	0,57%
		Forane	Abbott	20,90%	49,79%
		Isoflurane	Nicholas Pira	8,02%	11,61%
N01AB07	Desfluran	Supran	Baxter	0,03%	0,01%
N01AB08	Sevoflurane	Sevorane	Abbott	70,01%	38,02%
		Sevoflurane	Company 'F'	0,00%	0,00%

**SK**

ATC	Active substance	Drug	Owner	share value*	share volume*
N01AB06	Isoflurane	Forane	Abbott	20,90%	49,79%
		Isoflurane	Nicholas Pira	8,02%	11,61%
N01AB07	Desfluran	Supran	Baxter	0,03%	0,01%
N01AB08	Sevoflurane	Sevorane	Abbott	70,01%	38,02%
		Sevoflurane	Company 'F'	0,00%	0,00%

\* estimation based on the Czech market

Reference: SUKL (www.sukl.cz), SUKL (www.sukl.sk), internal materials

**Customer's segmentation**

A company cannot forget only about the market but also about the customers that should be targeted. There are several customers or rather subjects to focus at. These include hospitals, other medical facilities, doctors, nurses, management, hospital pharmacies or tender committee.

It is needed to set the criteria according to which the segments are divided. For the company 'F' the criteria are size and the decision making process on choosing the anaesthetics. Probably the widest portion of interest should be put on the hospitals as they are the biggest medical facilities in the Czech Republic and Slovakia.

Firstly we should see the development of the number of beds in facilities, number of doctors and number of facilities. From the 'Table 15: Health facilities (Czech Republic)' below it is



evident that the number of total beds is steadily decreasing as well as number of beds in hospitals. The opposite trend can be seen at the number of physicians which is steadily increasing. The number of beds is decreasing mainly because of the governmental efforts to reduce costs and to make the health care system more efficient by increasing the utilisation of beds. This effectiveness should also be yielded by reducing the number of medical facilities that is also evident from the Table 15: Health facilities (Czech Republic) and Table 16: Health facilities (Slovakia).

**Table 15: Health facilities (Czech Republic)**

<i>Czech Republic</i>						
<i>Indicator</i>	2000	2005	2006	2007	2008	2009
<b><i>Health establishments, total</i></b>						
<i>Beds (places)</i>	119 353	120 300	119 669	118 562	117 735	111 201
<i>Physicians</i>	38 330,0	40 802,5	41 031,5	43 676,2	44 381,7	45 185,1
<b><i>Hospitals (in-patient and out-patient parts)</i></b>						
<i>Establishments</i>	211	195	191	192	192	191
<i>Beds</i>	67 457	65 022	64 174	63 662	63 263	62 992
<i>From this for anesthesia</i>	689	808	836	869	902	914
<i>in % of total beds</i>	1,02%	1,24%	1,30%	1,37%	1,43%	1,45%
<i>beds utilisation</i>						255,5
<i>anesthesiological beds ut.</i>						283,2
<i>Places</i>	621	634	612	654	639	737
<i>Physicians</i>	15 438,3	16 495,4	16 639,4	18 039,8	18 401,7	18 852,8
<i>From this Anesthesiologists</i>						710,8
<b><i>Policlinics, joint out-patient establishments</i></b>						
<i>Places</i>	29	16	25	35	35	45
<i>Physicians</i>	1 323,6	1 480,5	1 468,4	1 557,3	1 600,2	1 623,8

Reference: CZSO ([www.czso.cz](http://www.czso.cz)), UZIS ([www.uzis.cz](http://www.uzis.cz))

Table 16: Health facilities (Slovakia)

<i>Slovakia</i>				
	2005	2006	2007	2008
<b>Health establishments total</b>				
<i>Number of physicians</i>	19 237	19 754	21 081	20 866
<i>Beds</i>	48 622	47 875	47 524	46 742
<i>Anesthesiology</i>	547	520	486	487
<b>Ambulance</b>				
<i>Jobs</i>	2 872,99	2 962,25	3 291,67	3 093,75
<b>Specialised Ambulance</b>				
<i>Jobs</i>	5 067,48	5 423,92	6 595,70	5 890,82
<b>Hospitals</b>				
<i>Jobs</i>	6 533,06	6 378,71	7 012,65	6 749,15
<i>Beds</i>	28 983	28 352	28 328	27 866
<b>Specialised Hospitals</b>				
<i>Jobs</i>	980,73	972,29	1 089,17	1 071,90
<i>Beds</i>	6 908	5 972	5 960	6 046

Reference: SSO ([www.statistics.sk](http://www.statistics.sk))

On the other hand the number of physicians is increasing as there is a lack of them. Beyond these trends the number of beds in anaesthesia is steadily increasing in the case of the Czech Republic which is mostly caused by increasing number of operations under anaesthesia. Here Slovakia shows an opposite trend. The number of beds in anaesthesia slightly decreases. Nevertheless compared to the number of operations the ratio is still higher than in the Czech Republic.

The number of beds in anaesthesiology increased to 914 in 2009 and number of physicians was in the same year 711 in the Czech Republic. Even beyond the increasing number of beds the bed utilisation is still higher than average with 283 days a year.

The most important for this segmentation is the number of anaesthesias in specific medical facilities. The number of general anaesthesias is increasing steadily every year. In the Czech Republic the absolute number is much higher than in Slovakia with 644 007 in 2008 (NRC, 2011) compared to 147 800 in 2009 (NCZI, 2009). The number of inhalation anaesthesias needed for different individual types of operations is stated in Table 17. In this table the number of anaesthesias is split between the different types of medical facilities. This segmentation data are available for the Czech market only. The Slovakian market is also estimated on the basis of values of the Czech market.

Table 17: Number of surgeries according to its type (CZ, 2008)

Type of surgery	Number	percentage
surgery	228049	35,4%
gyneacology	123110	19,1%
orthopedic	56285	8,7%
urology	34440	5,3%
pediatrics	24274	3,8%

Reference: NRC, 2011

From these findings the segmentation has been set to cover hospitals from 0 to 100 beds, then 100 to 1000 beds and finally over 1000 beds. In the first category there are 18 hospitals, in the second 124 and in the third 12 hospitals out of which there are 10 faculty hospitals concerning the Czech Republic. The last two categories are of the main importance and will be approached with highest priority as most of the anaesthesias are realised there.

Then these facilities will be approached according to the decision making process of choosing the anaesthetics used. There are basically four different groups of people that decide or have influence on the decision. These are doctors, pharmacists, management and the tender committee. Major importance will be given also to the key opinion leaders and also partly to nurses. The specific approaches to people are analysed more in detail in the following chapters.

### *Dynamics*

The positive trend of pharmaceutical expenditures is very clear from the tables stated in the previous chapter. The Czech Republic compound annual growth (CAGR) was 6.21 % during 2007 to 2010 and in Slovakia 6.66 % which is above industry average. The CAGR would have been much higher but the last year, 2010, was very weak.

The prescription drug sales has also risen very rapidly in 2007 and 2009 but in 2009 it faced a downturn of 0.6 % in the Czech Republic and Slovak Republic showed same trends (Business Monitor, 2011). Patented drug sales embodied similar double digit growths in 2007 and 2008 as the prescription drugs but in 2009 and 2010 turned to negative numbers of - 2.2 and - 4 % in Slovakia and - 0.8 % in both years in the Czech Republic. The CAGR of patented drugs was 7 % in the Czech Republic and 2.6 % in Slovakia. The generic market developed a bit differently and did not reach negative numbers at all. The growth was in 2010 5.4 % in

Slovakia and 2.3 % in the Czech Republic. The CAGR of generics sales was unbelievable 11.4 % in the Czech Republic and very interesting 7.9 % in Slovakia. The individual CAGRs are stated in Table 18. From this it is evident that the generics are taking a larger share against the patented drugs.

Table 18: CAGR of drug market

	2007	2008	2009	2010	average
CAGR generic Sk	6	13,8	6,4	5,4	7,9
CAGR generics CZ	21,6	10,3	11,4	2,3	11,4
CAGR patented CZ	11,5	6,8	10,7	-0,9	7,025
CAGR patented SK	-0,2	6,7	2,7	1,3	2,625

Reference: Authors calculations from previous tables

#### iv. Evaluation of analysis of micro environment

The following table includes the quantitative summary of the Porter's five forces model so that it is clearer to see the position of company's 'F' business. It contains also the main driving forces influencing the individual powers in more transparent way. The quantitative evaluation is stated in Table 19: Quantitative evaluation.

Table 19: Quantitative evaluation

Forces		Negative		Average			Positive		Points*Weight
	Weights	0	1	2	3	4	5	6	
Threat of new entry	5						x		25
Competitive rivalry	6			x					12
Supplier power	3							x	18
Buyer Power	4					x			16
Threat of substitution	5			x					10
Market growth	4							x	24
Received points	105								
Maximal total points	162								
Evaluation	64,81%								

\* This quantitative evaluation is valid for both markets as the differences between the two countries do not significantly influence the further steps of the company.

From this table it is clear that there is a very significant possibility for company to be successful as it scored almost 65 % which can enable stable and sustainable growth of sales

in the future. The weakest links in this imaginary chain represent competitive rivalry and threat of substitution. On the contrary the market growth has been very strong and the power of suppliers is very low.

**Table 20: Main outcomes of company's micro environment**

Need of vaporizers
Influential relationships needed
Strong competitors
Low power of suppliers
High market share of Sevoflurane
Increasing pharmaceutical sales
Increasing number of operations under anaesthesia
Increasing sales of generic drugs
High number of health facilities

#### **v. Competitor's analysis**

From the market segmentation stems two main relevant competitors to company 'F' that operate on the market of inhalation anaesthetics. One is considered to be the direct competitor but in this case it is not a proper direct competitor. The company Competitor 'B' is offering the same drug but as an original one so it is not a direct substitute and the second company Competitor 'C' is offering a slightly different drug suited for similar purpose so it is also considered as a substitute but not direct.

##### ***Competitor 'B'***

Competitor 'B' is one of the biggest pharmaceutical companies in the world and has very rich history going down to the 19<sup>th</sup> century. It employs around 72 000 (Competitor 'B', 2011) employees all over the world. It is focused mainly on five different areas including Diabetes care, Diagnostics, Nutrition, Molecular and Vascular areas. From the 1997 it is present on also on the Czech market where it employs 200 people in the field of marketing, sales and administration.

In the field of inhalation anaesthetics it is definitely a market leader with very rich 20 years long experience of marketing Product 'A' and others. Nevertheless there occurs a special feature. In fact it did not invent the Product 'A' but just bought it indirectly through one Japanese company from company 'F'.

Its world market share in the whole world is 81 %<sup>6</sup> which is reached by a very strong focus on the field of inhalation anaesthetics. They also possess a very strong marketing and sales force size and are engaged in a very high percentage of vaporizers penetration in hospitals. The renting of vaporizers by Competitor 'B' to hospitals and other medical facilities formed a very strong barrier to enter this market. They have also built a very close relationship with customers and they then become very loyal which increases the barrier even more. They also succeeded in creating a very strong and positive brand image and they strongly differentiate and leverage branded drugs against the generic drugs. The main goal is to keep the market share and to maintain the market leadership position.

The other phenomenon is the strong effort to convert the older anaesthetics such as Isoflurane and Desflurane to Product 'A' which limits the market of Suprane sold by company 'F'. The other strategy is the decreasing the prices of older generics when it is demanded. They also try to raise doubts about the quality of generic drugs. This all is done in purpose of preventing the competitors to come and it can be anticipated that they will continue in this strategy. They will also innovate and rationalise they portfolio according to the current demands of the market. It can also be expected that they will be willing to decrease the price of Product 'A' in order to keep the market share.

### *Competitor 'C'*

This company coming from India is much smaller than Competitor 'B' and has also much shorter history but in India it is one of the biggest pharmaceutical companies and offers one of the largest product portfolios. It is focused mainly in nine key therapeutic areas including the Cardio-vascular, Neuro-psychiatry, Oncology, Diabetes Management, Respiratory, Anti-infectives, Gastro-intestinals, Dermatology and NSAIDS (Competitor 'C', 2011).

---

<sup>6</sup> Internal materials

Unlike Competitor 'B' it represents the low cost alternative to brand drugs. It can offer very cheap price as the manufacturing costs are significantly lower in India. At the same time the quality of the drugs has improved a lot. They gained the knowledge and access to the drugs through various mergers, acquisitions and joint ventures.

It is the only company that offers all types of inhalation anaesthetics. In case of the Czech Republic and Slovakia it offers only the Isoflurane and thus takes only a minor market share but still much more significant than company 'F'.

Its main goal is to become an important player on the Czech and Slovak market. They have relatively strong marketing and sales base. They have built a strong partnership with distributors, which creates a better position for them and they also apply the strategy of the low price.

They also bid aggressively in strategically important tenders and increase the investment in vaporizers to reach higher market share. Competitor 'C' gain the market access through B2B deals. It also attempts to build a relationship with customers to gain the confidence as a relatively new name in anaesthetics. The intention of Competitor 'C' is to introduce a drug based on active substance of Product 'A' but they will not manage this before company 'F'<sup>7</sup>. They will probably also try to arrive with also B2C deals.

## **vi. SWOT Analysis**

This part is summarising the strengths, weaknesses, opportunities and threats that partially stem from the previous analyses and also from the specifics of company 'F' and mainly its new product 'A'.

### **Strengths**

There are many strong attributes that product 'A' and company 'F' possess. Firstly it is important to say that the price, as product 'A' is a generic drug, is lower than the original Product 'A' offered by Competitor 'B'. Another very strong factor is the fact that company 'F' can offer the whole portfolio of inhalation anaesthetic agents including Product 'A',

---

<sup>7</sup> Internal Materials

Isoflurane and Desflurane. Strength lies also in the early expected date for the launch of product 'A' which is set for autumn 2011.

The other strong aspects are more of chemical and usable qualities of product 'A'. The bottles in which the product 'A' is kept are made of aluminium which brings a lot of advantages. The bottle is very resistant to damages and it prevents the drug from decomposition by light. It also does not contain the Lewis Acid that causes the substance 'A' to decompose too and thus less water is needed to store this substance.

It is very beneficial that the minimal alveolar concentration (MAC) that is needed to narcotize the patient decreases with the age so for example for older people it is needed half of the concentration than for the young ones. It is also low soluble in water and thus only a minimal amount is dissolved into blood. There can also be seen a very rapid increase in alveolar concentration compared to the inspired concentration and the efficacy starts within one minute.

The substance is eliminated via lungs very quickly too. Also the depth of anaesthesia is following the inhaled concentration. Very positive is also the fact that it does not increase the heart beat under the concentration lower than two MAC. Another benefit is the quicker time to emergence, responses to command and lower analgesia. Product 'A' is also non-pungent which means that it does not invoke respiratory irritability.

The process of the manufacturing ensures the highest quality as it is made by a three step process of manufacturing. There is also an additional granting of highly modern and quality vaporizers including their service and life time warranty. The installation of these new vaporizers is very quick and it takes only 20 minutes to change the old vaporizer for a new one. The aluminium bottles can also be mounted to a special easy-fill cap which ensures that no product 'A' is wasted and if it is not used all it can then be stored for later. The time for storage is also very useful as it can be stored for 24 months. The product 'A' is also AN rated that means that it has the same efficacy and same side effects as the original drug.

Other strengths follow from the previous analyses. These are: the high number of facilities where Product 'A' could be used, the 70% share of Product 'A', low power of suppliers and buyers and highly similar Czech and Slovak markets where same strategy can be used



## *Weaknesses*

To the biggest weakness it should be stated that the product 'A' needs for usage a new vaporizers and the penetration of vaporizers from company 'F' is very low so the trump is in the hands of Competitor 'B'. This is evident from the previous analyses from which follows also the high rivalry among current competitors. The vaporizers are also very costly to purchase for every medical facility by company 'F'. Another negative factor is the low presence in the market of inhalation anaesthetics and also the low focus on this area by the company 'F'. Weakness is also the already mentioned need of creating influential relationships with customers.

It is also needed to ensure an open access to air inflow, keeping the patient's inspiration, artificial ventilation, oxygen enrichment and also the circulatory respiration. It is also important to say that the product 'A' can cause a malignant hyperthermia and for the patients with renal insufficiency the safety is not guaranteed.

There is also a danger of presence of strokes, bronchospasm, laryngospasm and also cough. Product 'A' is also not suitable for patients with subject to heart arrhythmia or neuro-muscular disease. Also when product 'A' react with NaOH or KOH another substance can be formed which is toxic. Nevertheless the toxicity has never been high enough to cause harm. Also with the higher flow of CO<sub>2</sub> the temperature rises. Last but not least it decreases the blood pressure when subject to higher concentration.

## *Opportunities*

There is a huge opportunity as the patent protection of branded Product 'A' is expiring soon and company 'F' is going to be the first to introduce generic to the market. There is also a very strong usage of Product 'A' in the market which is seen even to be higher and also to convert from other inhalation anaesthetic agents. The market is also expected to raise demand for the generic Product 'A'.

What more there are other positive factors that favours product 'A'. These are the increasing expenditures on health, aging of population meaning more operations needed, increasing number of beds in the area of anaesthesiology and the higher volume of anaesthetics used. What more company 'F' is also present on the market of inhalation anaesthetics even now which provides it with significant experience in sales and marketing.

There is also an effort from the government to reduce the expenditures which favours the generic drugs and there is also an opportunity to increase the market share of Isoflurane and Desflurane.

### *Threats*

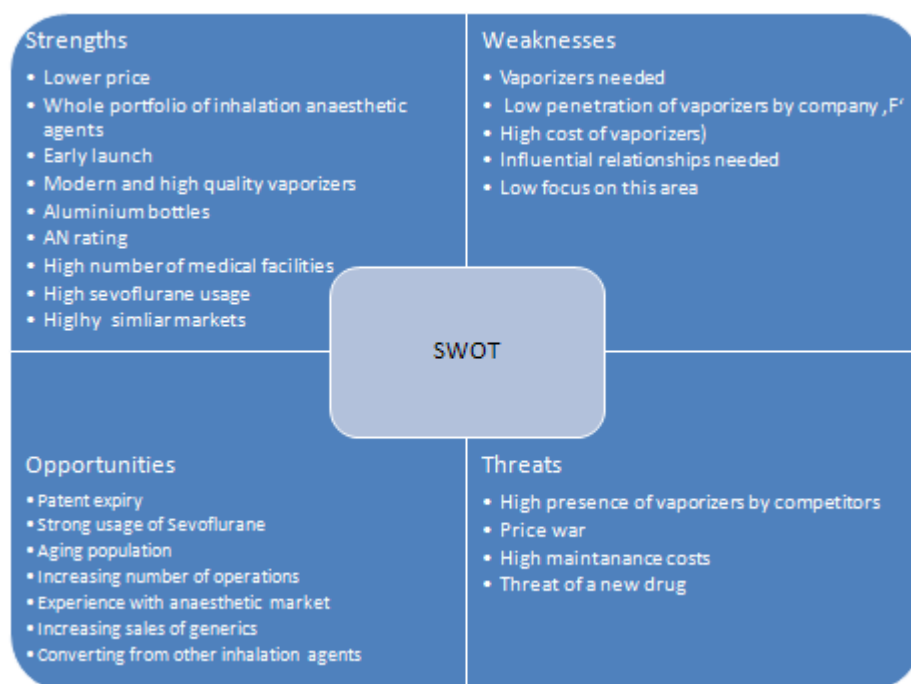
The biggest threat is seen in the very high barriers to enter this market caused by the high presence of vaporizers of Competitor 'B'. All the key customers are nowadays supplied by Competitor 'B' vaporizers which also increases the loyalty of the customers to Competitor 'B'. There is also a threat that Competitor 'B' will reduce the price of Product 'A' in order to keep the market as it has done in the US. This price decrease can also lead into a price war.

There is also a threat that the costs to maintain the vaporizers will be too high. It is also possible that a new generic Product 'A' can come which is intended by the competitor Competitor 'C'. What more another original inhalation anaesthetic can be invented which will change the market very significantly. Also the maximum price and reimbursement can be lowered by the government.

There is also a risk by proteinuria and glycosuria when the concentration exceeds 2 MAC and at the same time the circulation is less than two litres per hour. There is also the risk of forming of the toxic substance mentioned above. There is also a small doubt about the non-transparent aluminium bottle. The product 'A' also contains 50 times higher concentration of HFIP but it is still not of a clinical importance. There is also a possibility of presence of disseminated sclerosis from the residual anaesthetics but it was not proved to be caused by product 'A'.

The main outcomes of SWOT analysis are presented in table.

Table 21: Main outcomes of SWOT analysis



## vii. 7 P'S Marketing Mix

In this chapter the company's marketing mix is analysed. It consists both of the analysis of the product 'A' specifically and also of the marketing mix used by a company 'F'.

### *Product*

As it is mentioned in the theoretical part the product can be seen as it is composed of three parts. Firstly the core product is analysed followed by the total product including differentiated characteristics and finally by the augmented product including services provided.

Company's 'F' main focus is on developing, manufacturing, marketing and finally selling of pharmaceutical products mainly in the area of Medication delivery, Renal and Bioscience. In this case we can leave out the developing and manufacturing as it is not in question talking about the Czech and Slovak subsidiaries. The main articles of this company include original drugs. Nevertheless the product 'A' is a generic drug to an already existing one and it belongs to the group of inhalation anaesthetic agents more specifically halogenated hydrocarbons with the ATC code N01AB08.

It is used for an induction and maintenance of general anaesthesia in adults and children. It shows better results and characteristics than other older anaesthetic agents as seen in the

SWOT analysis. Product 'A' is a halogenated methyl isopropyl ether inhalational anaesthetic which produces a rapid induction and recovery phase. It is a clear, colourless liquid stored in aluminium bottles lined with an internal epoxyphenolic resin protective lacquer, and plastic screw-on caps with a polytetrafluoroethylene (PTFE) laminate inner liner. The bottles are of a volume of 250 ml (SUKL, 2011). It can be sold as separated bottles or as a pack of six. The label of the aluminium bottle is yellow. The bottle can be seen in appendix 4 in Appendix 4)

Picture 7: Product 'A'. This medicinal product comprises only of the active substance with minimum amount of water. The bottles do not require any special storage conditions. The cover of the bottle contains all the information required by law and is in accordance with the law both in the Czech Republic and Slovakia.

Product 'A' should be administered with a vaporiser calibrated specifically for product 'A' and with the use of a filling system with a key which is designed for the product 'A' special vaporiser or other filling systems suitable for the product 'A' special vaporiser (SPC, 2009). An example of a vaporizer is shown in the Appendix 5 Picture 8: Vaporizer.

The product cannot be purchased by patients and it can be used only by certified medical doctors or nurses. The pure liquid in a bottle is poured into a vaporizer which transforms it into a vapour that is then inhaled by the patient. It is very important that the anaesthesiologist know the right concentrations and indications needed. The product 'A' has the FDA approval meaning that is therapeutically equivalent to the branded product and provides also the same critical versatility.

The second very important thing represents the total product. The product 'A' as having the FDA approval offers a very good economic value as it is cheaper than the original drug. The anaesthesiologist can be confident that they provide high quality care for patients and they can thus feel good for having made a responsible and sensible choice which decreases the demands on budget.

It is also very important not to forget about the fact that the company 'F' is the original inventor of the drug so others can rely on the quality. The lower price also opens an opportunity to start using a high quality anaesthetic agent in a higher number of cases including new uses or broadening of the already existing ones. The use of aluminium bottles

offers a much more practical handling and reduces the risk of breakage. The easy fill caps also make the handling and using easier which increases effectiveness and saves time.

The last is augmented product and it includes the services. Company 'F' is not only purchasing the product 'A'. It also secures and pays for the most modern, efficient and accurate vaporizers. They do this by contracts with manufacturers of the vaporizers. Currently there are two suppliers of vaporizers that company 'F' has. Not only the vaporizers are secured. Company 'F' also provides the installation and maintenance of them. The vaporizer cost is relatively high and so are the maintenance costs. With these costs is counted in the NPV model.

The company 'F' also can offer the possibility of supplying all of the types of anaesthetic agents in one pack which is a very effective way for customers to secure needed types of anaesthetic drugs so that they can choose the proper one and increase the quality of care of patients.

### *Price*

As company 'F' is mostly the manufacturer of original products it mostly sets the price according to the cost-plus pricing method. In this price the costs for research and development of the drug has to be counted so the final price is very high compared to manufacturing costs. It is definitely needed to also consider the Value perceived and Going-rate pricing method as sometimes there are similar original drugs on the market or the product is prestigious enough to set higher prices.

In the international point of view company 'F' then mostly uses the skimming strategy or premium price strategy. As there are no substitutes on the market when the drug is protected by a patent the company can set very high price and then when the patent expires and other generic drugs come it has to lower the price in order to keep the sales. During the patent protection the strategy can be also the premium pricing strategy as there are no substitutes.

In the case of product 'A' the pricing strategy has to be very different. As there is already a original drug on the market the company 'F' has to consider the going-rate price strategy and set the price according to the competitor. The goal is to set it lower than the competitor

as it is perceived as not as prestigious product as the original one. This is connected with the value-perceived pricing strategy too. Definitely the company has to also watch the cost-plus pricing not to set the price below the height of costs so that it would make loss.

It is also important to take into consideration the relatively low price elasticity of this type of drug. It is so because the drug is needed even if the price is higher as it does not have many possibilities of substitution as the other anaesthetics have different properties and are suitable in different cases.

First of all the company 'F' has to deal the maximum price with the state health authorities. Nowadays there are talks about setting the maximum price at the same level as the manufacturer price which contains the costs plus certain profit of manufacturers so currently the price is seen to be 4,180 CZK for the 250 ml bottle of product 'A' and 25,080 CZK for the pack of six 250 ml bottles. The competitor has not set the maximum price and its manufacturer price is 4,600 for 250 ml bottle. This price does not include value added tax (VAT).

It would be crucial to set the price lower than the competitor. It is estimated that the price has to be at least 10 % below the price of the competitor. This means that if the price was set at current manufacturer prices it would reach this goal.

The company has to also see and project the future trend into the price too. As it is mentioned above that the companies selling original drugs practises the skimming strategy it can be expected that Competitor 'B' will decrease the price continuously to compete against the new generic drug. Also the company 'F' has to adopt this trend in order to keep the price below the original drug price in order to keep or even enlarge the sales.

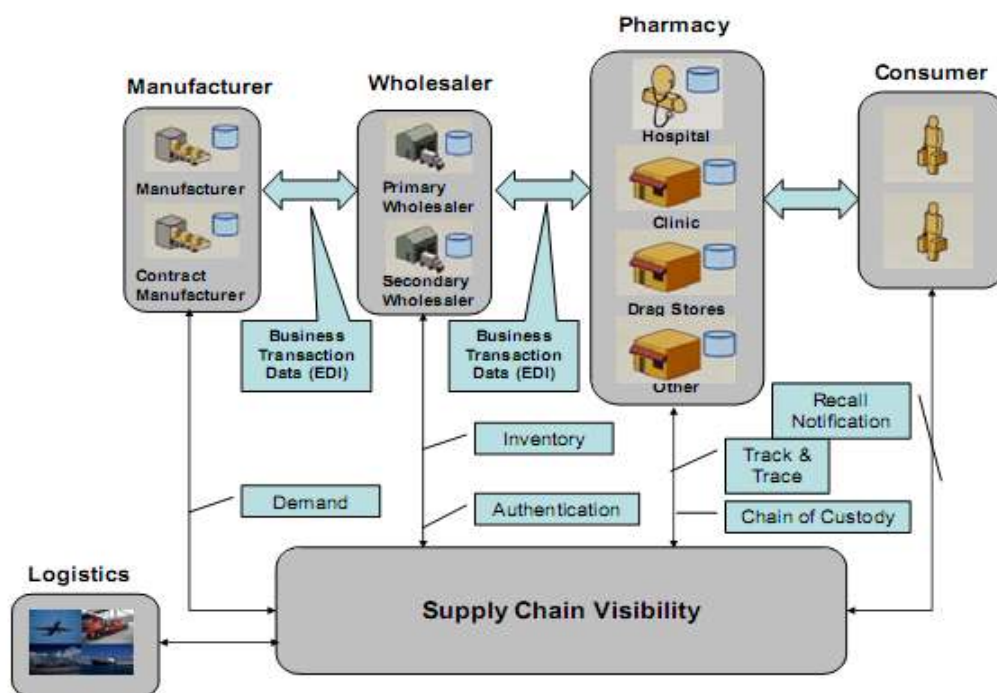
Other very important factor to watch is the development of the value added tax. The drugs are now in the lower tax rate regime so the rate is 10 %. Nowadays when the government is trying to decrease the state deficit a change has been proposed. The tariff should be increased to 14 % in 2012 and later the two tax regimes should be united to just one with tariff of 17.5 % in 2013 (Zdravotnické noviny, 2011). This increase will result in increase in final prices which can possibly decrease the sales slightly.

It is also important to look at the business surcharge which also influences the final price. If the surcharge of distributors or pharmacies increases the final price will also increase which can then negatively influence the sales. Nevertheless this trend is very unlikely to take place as this would not bring any money to the state budget but will even take more money out as this profit goes to private hands. More probably the decrease can be expected as the savings are on the list nowadays.

## Place

The pharmaceutical products get to the market usually via numerous mediators. In the field of drugs business there is an indirect way with usually two mediators. The supply chain is well described by Picture 2: Pharmaceutical supply chain. Firstly the drug is developed and then manufactured by the developer itself or it can outsource the manufacturing to contract manufacturer. Then because the number of supplied sites is very big it is necessary to use the wholesalers that are specialized for this purpose which results in cheaper and more effective distribution. Then the distributors sell this drug to medical facility where it is consumed or it sells it to a pharmacy where the final customers buy it. It depends on the type of drug how, when and where it is finally consumed. Sometimes it is difficult to see what the distribution channel is like and whether it is appropriate.

Picture 2: Pharmaceutical supply chain



Reference: Zhang, He and Tan, 2008

In the case of product 'A' the last part of the chain, the consumer, is participating in the supply chain only passively as he does not decide on the purchase of the drug. He only receives the treatment. The drug is then purchased by medical facilities such as hospitals or health centres. The decision then can be mainly in the hands of anaesthesiologists, the hospital pharmacy or the management of the medical facilities, in this case mainly regarding hospitals. It is thus very reasonable to concentrate just on these targeted groups regarding the distribution. The drug stores and ordinary pharmacies are totally ruled out in the case of product 'A'.

As the company 'F' is mainly the developer and manufacturer of drugs it uses the wholesalers as connecting links. It is thus crucial to concentrate on the distributors and create and keep narrow relationships with them. It is very important also to choose reliable and high rated ones with plenty of experience of the market.

The distributors can in the case of product 'A' apply a selective rather than intensive distribution policy as explained in the theoretical part. The distributors should concentrate only on customers that will buy larger quantities of the drug packages. It is so because the price of a needed vaporizer is relatively high so the company needs to repay for it. Also not all the medical facilities perform for example surgeries under general anaesthesia.

There are also cases when the manufacturer can skip the connecting link and sell the drug directly to medical facilities. These situations can include the purchase of drugs that are subject to tenders because they exceed certain amount of total costs. In these the manufacturer can afford to secure the distribution by itself because the order is of a very big volume so it is worth it.

In the case of these direct sales the company 'F' should also pick a selective strategy and supply only tenders above a certain amount of ordered units. Otherwise it would be too costly to supply each customer with low number of units. It is thus beneficial to watch mainly all the tenders and take part in the active participation. The company targets not only the distributors but also the medical facilities itself.



## *Promotion*

The company 'F' is an affiliate of the mother company based in US. The promotion strategy is in general proposed by the mother company. It recommends the main message and framework which should be applied and also the communication mix. Nevertheless these can be adapted and modified to fit the local market. So the affiliates apply the adaptive strategy as explained in the theoretical chapter above. Only the fundamental and big changes should be addressed to the mother company that should approve it. The adaptation is often needed because of the national regulation of propagation. For example in the Czech Republic and Slovakia mainly the ATL activities are very restricted by the Advertisement law (Zákon č. 40/1995 Sb.).

Company 'F' uses all of the three types of propagation activities including ATL, BTL and OTL. This is because it sells both OTC drugs and Rx drugs. In the case of drugs that are intended to customers being also consumers it uses ATL activities including TV, billboards and other mass media. As an example the billboard advertisement for encephalitis can be mentioned. See Appendix 6 Picture 9: Billboard advertisement. There is also a TV commercial giving you notice about the encephalitis.

Other propagation channel used from the ATL category is the advertising in magazines and journals. This includes the advertisement both for general public and also for professional public. Company 'F' is very active in publication of various articles dealing with different types of illnesses which is very effective channel of propagation itself.

The company 'F' is also active in the field of OTL. It has its own web pages which are used as a matter of propagation. They are not intended for purchases. The pages contain basic information about the company including products and services but you can find there also information about health which is related to the products the company offers. Beyond this it is also engaged in other web pages that are related to health. On these pages you can find: what is new, general description of the disease, what can cause it, how to protect ourselves and other similar type of useful information. An example is the web page [www.pozorkliste.cz](http://www.pozorkliste.cz). These help to build positive PR and enhance the brand awareness.

In spite of the active participation on these the main focus is though on the BTL activities. As most of the drugs are prescribed by medical doctors or purchased by medical facilities, which means lower number of targeted customers, it is vital to focus on this area.

Every single pharmaceutical company in this area includes the presentation of drugs directly to medical doctors by sales representatives. This is supported by propagation materials such as leaflets, handouts, brochures, advertisement gift items and others. It is important to mention that the gift items are limited by maximum value for one person per year (Nováková and Jandová, 2006). Very common are also visits on site where the sales person is obliged to transfer the information regarding efficacy, maximum price, reimbursement and others about a drug so that the intended person is able to create his own opinion (Law no. 40/1995 Sb.).

Other tool is the organising of professional symposia that are attended by doctors. These symposia are very often accompanied by refreshments, cultural events or sport events. These activities are also regulated by law. Very similar is the support of congresses that can be local, regional or international. The support on these congresses is also regulated by law.

The company 'F' also makes use of supplying doctors with free samples of drugs. This area is regulated as well. The samples have to be given only to persons that are eligible of prescribing or delivering the drugs. The amount has to be maximally the smallest package offered by the company and has to be signed as a 'free sample'.

Other way of propagation is the direct marketing. Company 'F' uses this too mainly in a form of electronic means such as direct mailing and sometimes telemarketing. The content of the mail is mainly about new products, events and special offers. The company 'F' applies this mainly in case of already existing customers. It can be used also for new customers but the impact is significantly lower.

Thanks to these activities the company can reach very close and loyal relationships with the persons that have the most significant influence on buying the products. The wholesalers and distributors are also not left out as they are very important too. The representatives of the company are dealing with them to set better conditions and prices for sales.

As the product 'A' is a generic Rx drug the mean of propagation should stem mainly from the BTL and OTL propagation strategies. The ATL can be applied too but mostly in a form of scientific articles and propagation in scientific topic-related journals.

### *People*

The people are the most important factors of all as stated in the theoretical part. There are many different groups of people involved in the process of buying the anaesthetic drug meaning both the representatives of a company, the customers or mediators.

For the company 'F' work many people in different departments. The most important departments for successful sales of a product are sales and marketing departments. There are two key positions for each drug: key account manager and product manager. These are the ones responsible for dealing with customers and for sales of individual products. Very important is also the support of the management. This is more important when the deal is of significant value. These situations encompass mainly the tenders.

It is important that the people working in these departments have strong interpersonal and communication skills. They must also know the products very well in order to vindicate the advantages and positive values of the drug. In order to achieve these skills and capabilities regular and intensive trainings are needed to be taken. Very important is also the communication between each department so that the company can operate as one unit and be thus effective.

In the case of distributors and wholesalers the most important human resources are coming from the team of business consultants that are responsible for dealing of prices, conditions of purchase and special offers. They also transfer the product to retailers, mainly pharmacies. They can also offer marketing services via marketing consultants both to manufacturers and retailers.

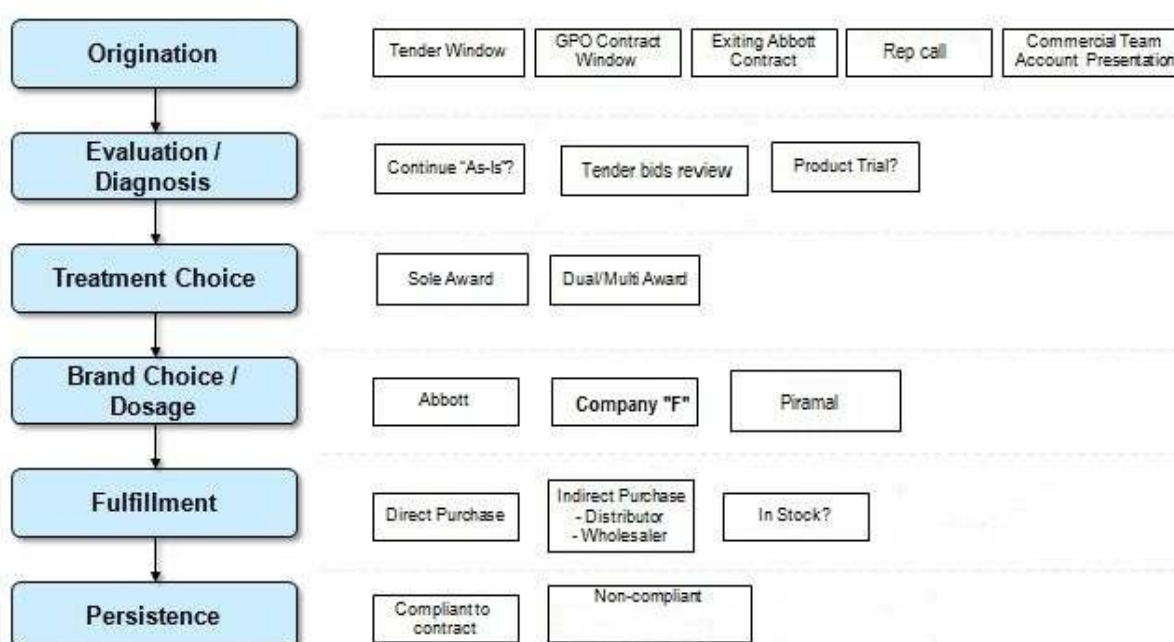
On the side of customers and buying decision influencers we can mention three different groups of people. To the first one belong the anaesthesiologists and anaesthetic nurses that decide on the type of anaesthetics used during a specific operation. The second group includes the pharmacists, general public offering (GPO) contractors and tender committee that represent the purchasing authority. They seek for reliable suppliers and they also

control the budget. In the last group stand director of pharmacy, chief of anaesthesia, director of contracting and the tender authority. These are the ultimate decision makers on drug procurement.

### Process

The process of buying a drug is relatively complex and there are many turning points that determine whether the specific drug is finally bought or not. The buying process is clearly seen in picture 4.

Picture 3: Buying process



Reference: Internal materials

Firstly the company has to enter the market entry access point. In the case of drugs there are five different types of market entering. These are tenders, general public offerings, attempt to overtake Competitor 'B' existing contract, calling the customer directly by representative or via the commercial team account presentation.

Then there is the phase of evaluation and diagnosis where the customer stays as he was before or chooses different possibility. After, the potential contract is reviewed and it is ruminated over a product trial. Next step is usually the choice of the customers whether they choose sole award or if they go for dual- or multi-award. This means that if they choose sole award they will buy the drugs from one company only.

After this step the brand choice and dosage take place. This is very important as the customer chooses the company he will buy from and also the quantity. If they choose the company 'F', the fulfilment proceeds. There is a question whether company 'F' has the amount in stock. If not the wholesalers and distributors take part and if there is enough on stock the purchase is direct. The last phase is so called persistence as it is important whether the fulfilment was successful. Whether the customer is satisfied depends on the in time delivery and the quality of service offered and others. The customer satisfaction is crucial for future sales and for building a wanted long-term relationship.

### *Physical evidence*

The last part of this marketing mix is measuring and characterising the overall environment of the sale. It is important that the company 'F' ensures high quality of the sales and marketing team so that the customer feels that company 'F' is the right choice for supplying the drugs.

The physical evidence of company 'F' is also created by the high level, well-arranged and well-designed web pages. The company has a uniform framework for invoices, despatch notes or letters. They use the same style and there is always the same colour combination with the logo at the top. Similar rules are valid also for the brochures and other propagation materials. The company also disposes of very luxury offices in business centres located near the centre of Prague and Bratislava.

This area covers also the packaging of the products and quality of service provided. It is also very important to secure this high quality and reliability at the side of wholesalers and distributors. These all aspects must be harmonised to create a pleasant, reliable and friendly environment that the customer enjoys.

## 6. Strategy proposal and evaluation

In this chapter the present strategy of company 'F' is evaluated and the proposals for launching the product 'A' are stated so that the launch is as successful as possible. After, the prognosis of the market and market share is estimated followed by the economic evaluation.

### a. Present strategy evaluation

The company 'F' is a successful company and is an important player on the market of drugs. Nevertheless the market of inhalation anaesthetics is for the company not the most successful market. The market share has been even diminishing. The strategy generally is a successful strategy. The problem of inhalation anaesthetics is that the company has taken this area as defocused so far. Now it seeks to increase its sales in all areas including this. That is the reason for launching a new product.

The strong positive factors of the strategy are:

- High quality and innovative products
- High quality supportive services
- Informative and well-arranged web pages
- Tight relations with distributors and wholesalers
- Large marketing and sales team
- Support of the mother company that sets the general strategy framework
- Effective system of sales and marketing support
- Precisely elaborated buying process
- Focus on relevant groups (doctors, GPO contractors, tender authority, pharmacists)

These factors are a proof of a promising strategy that company 'F' successfully applies. All of the products that are offered are of a very high quality and are in many cases unique. Also the quality of services accompanying the products is very high. To these the professional consulting, fast and in time deliveries or technical equipment can be mentioned. These all contribute to the better healthcare in general.

The deliveries are partly handled by the reliable wholesalers and distributors and the availability for final customers is secured via pharmacies. The sales are generated by the marketing and sales teams focused mainly on the relevant groups of customers and decision makers. The Czech and Slovak affiliates are supported by the mother company that gives them the general strategy framework but affiliates can adapt it for the local markets. So they are given relative freedom on what they should do.

The sales are also supported by a set of tools such as direct mailing, telemarketing, prospects, point of sales (POS) visits, presents, free samples, support of doctors at congresses, organising of symposia and others. Very important are the elaborated turning points during the buying process so that it is easier to see on what steps the company should concentrate. This makes the activities most effective.

### **b. Proposed strategy for launch of product 'A'**

In this chapter the strategy for the launch of the product 'A' is designed. It would be based on the previous analysis and it should be in accordance with the current strategy.

#### **i. Product**

Firstly the message concerning the product 'A' that should be transferred to the customers and decision makers is proposed. The main message should deliver that the product 'A' is an 'effective and safe inhalation anaesthetic for general anaesthesia sold at affordable price, delivered by the original inventor of this active substance and supported by high quality service'. It also should be emphasised that the generic product 'A' is AN rated and has the same efficacy as the original drug. Other important message should include that new modern vaporizers will be provided and installed for free followed by free after sale service and maintenance as well.

Then the advantages of the new modern anaesthetics should be communicated. The customers should be aware that it allows fast early recovery and rapid return of cognitive function. It has been shown to decrease the post operation nausea and vomiting and it allows performing inhalation induction. Another alluring fact that should be mentioned is the possibility of sale of all three types of inhalation anaesthetics that are available on the market.

## ii. Price

The height of the manufacturer's price is now set to 4 180 CZK which is in accordance with the intention to launch the product at a price 10 % lower than the competitive original drug. It is proposed to reduce the price by 10 % every year as the competitor is expected to lower the price too.

This lower price should be competitive also at the tender bidding. The price lowering is considered also in the next chapter that evaluates the launch of the product 'A' from the economic point of view.

Crucial will be the arrangement of the maximum price at the level of the manufacture price. The representatives of a company should be able to achieve this goal. The reimbursement will be a bit more difficult quest as the government would try to set it as low as possible. The interest of the company would be to set the reimbursement as high as possible.

## iii. Place

Here the approach should be different according to the decision making process. If the most influence is on the anaesthesiologists the activity should be focused on them and also on the anaesthesia nurses. On the other hand when the management of medical facilities is the main decision maker on drug purchase this management has to be approached. In the case of major influence of medical facilities' pharmacies the pharmacists should be the target group on which the marketing and sales activities should be pointed. Finally when there is a tender the tender committee or tender authorities should be in the viewpoint. A very special group and also one of the most important is the group of so called key opinion leaders (KOL). These should be definitely approached but differently.

In most of the cases the drug should be distributed by distributors or wholesalers. Only in the case of tenders where the order would be of a larger amount the direct selling is the right choice.

The most desired target is then the big hospitals with over 1 000 beds as there is the highest number of operations under general anaesthesia and the highest number of vaporisers placed. There also work the most anaesthesiologists. The decision making process varies from hospital to hospital so it is needed to check this process in every facility the company would like to deal with. The second most desired segment is the hospitals with less than 1



000 beds and other larger health centres. There is also the possibility of secondary focus on private health centres such as plastic surgeries where there are many operations under general anaesthesia. The data are though not publicly available.

It is advised to concentrate specifically mainly on the tenders. There is a higher chance to succeed as usually the main criterion is the price. It is because the government wants to reduce the expenditures on health, especially drugs.

#### **iv. Promotion**

The main task of promotion is to transfer the message stated in previous part of this paper and to generate sales. It should be focused on the targeted segments stated above.

Firstly the company should organise so called Launch symposium where the important KOLs should take part in. In this symposium the launch of the product should be solemnly declared. The KOLs should present the anaesthetic in a positive way and there should also be representatives of scientific journals related to the anaesthesia topic so that it is then published. It is very common and recommended to invite also at least one KOL from abroad. The content of the presentation should include the main message with other specifications and advantages of the product 'A'. This should create a very promising initial awareness of the product because KOLs have a very strong influence on the professional public that could influence the purchase behaviour.

At the same time the sales representatives should be going for visits at POS directly. They should inform the priority segments about the efficacy, prices and conditions of sales. They should also mention the granting of vaporizers. The vaporizers represent the biggest barrier as there are already vaporizers placed. It is important to deliver that the granted vaporizers are newer and better. The free samples could not be given as the product 'A' needs the vaporizers first that are too costly to provide as a free sample. Further, the propagation materials are definitely needed.

Very beneficial is to organise so called 'round table' events where doctors should participate. In these events the doctors are informed about the benefits of the drug and they are given free refreshments. There is one medical doctor, called advocate, that has the knowledge of the product and the problematic and he gives a speech and answers the questions of others.

He gets paid for this event. There is also the representative of the company that coordinates the whole event. It is advised to invite mainly the more experienced doctors who have higher degree of influence so that the impact of these events is higher.

It is then essential to organise other events during the next years continuously and to support doctors at congresses dedicated to the field of anaesthesia. It is also worth to partly finance the grants in the field of anaesthesia. The author proposes also to publish new scientific articles in journals. The articles should be about the generic product 'A' stating that it is comparable to the original drug and that it is safe, of a high quality which is unobjectionable. This is proposed because it is expected that the competitor will try to decrease the credibility of the generic drug in order to keep its market share. It is also helpful to found scientific forums and blogs about anaesthesia where the company should actively contribute and employ also the KOLs to participate and contribute too. The company should also join also already existing forums.

The direct mailing is also recommended and mainly after the launch to already existing customers to keep them. The form of telemarketing is also still very effective tool for this product.

For the support of sales it is recommended to offer also special deals. These could include the possibility of 10 % discount when the order is of more than 100 bottles a year. Another possible discount of 10 % can be assigned of the customer buys a full package of all three different types of anaesthesia. These could be very helpful tools for increasing the total sales and still achieve increasing profit. Other advised activity would include a special offer to returning customers in a form of 10 % discount again. This would help to keep the sales that have already been won. The attention should then be paid to the height of the price after first years as the price could possibly decrease below the costs which would lead to a loss.

The costs for the propagation activities are estimated in the following part.

#### **v. People**

To reach the needed amount of customers and to be able to handle a successful launch it is needed to employ or outsource the needed staff. It is estimated that for the number of customers in the Czech Republic one Key account manager (KAM) and two product

managers will be needed. In the case of Slovakia one KAM for part –time and one full time PM are needed. The KAM are available via outsourcing for 100 000 CZK per month and the PM for 80 000 CZK per month<sup>8</sup>. The key account manager is expected to be sufficient only one for both markets after the first year of sales. The key account managers and product managers will be responsible for the POS visits.

There is also an existing sales and marketing team available. The KAMs and PMs will be responsible for these teams too. The teams dispose of relatively high level interpersonal and communicative skills but do not possess the knowledge of the product. It is then advised to undergo special trainings for this staff.

The training should consist of both the product training and anaesthesia grounding. The goal would be to shift from generalists to specialists in order to be capable of effective competition against the sales force of Competitor 'B'. The content should also comprise of the knowledge of other anaesthetic agents that will be offered in the previously mentioned package. These trainings should also develop the skills of creating the counter arguments to Competitor 'B''s statements. The result of this should be mainly the arguments but also materials and other tools. It would be also helpful to intensify the commercial skills as well in order to improve the sales effectiveness even more.

This all should be trained internally in the company but it should also be supported by the external trainings. This would involve establishing regional simulation centres and web based interactive training. This would increase the awareness of the training and accelerate the adoption of skills. It is recommended also to introduce peer to peer training including workshops and DVD's training.

Other very important people should be the Medical department team. This team of people would be responsible for the scientific part. They should possess the knowledge of the scientific background. Their job would involve the continuous monitoring of the scientific articles, generally the publications and they should know the trend and what is new.

---

<sup>8</sup> Internal resources

## **vi. Process**

The process is corresponding with the process described in the previous analysis. In this chapter the individual steps and actions are stated to fit for the product 'A'.

In the phase of origination the customers have to be informed that the product 'A' is available in a generic form from the company 'F' and the qualification to be admitted for the tender should be secured.

Then during the evaluation/diagnostic and treatment choice steps, if there is a tender or GPO contract and at the same time the sole award is in consideration, take this as the first priority and win the sole award whenever possible. This ensures the sale of also other types of anaesthetics. When it is the dual or multi award, Competitor 'B' is more likely to win as they have a bigger sales footprint in the field.

The Brand choice/dosage phase offers the possibility to differentiate company 'F' by focusing on the world leadership in anaesthesia, unique product features and state-of-art vaporisers and thus persuade uncommitted customers to choose company 'F'.

The fulfilment step needs to ensure that the representatives develop a sustainable relationship with the customers to maximise contract compliance. The improved vaporisers coverage and utilisation should take place in order to maximise the account productivity. The last phase of persistence the most important activity is to proactively manage the tenders to ensure the desired sustainable growth.

## **vii. Physical Evidence**

This area does not require any special or significant changes for the launch of product 'A' as the physical evidence is already in place. This includes the package of product, state-of-art vaporisers, templates, sales force and others.

## **c. Prognosis and Economic evaluation**

In this part the prognosis of the market of inhalation anaesthetics and also the market share of the company 'F' is elaborated. It is then followed by the NPV model, ROI indicator and breakeven point.

### **i. Prognosis**

The prognosis has been elaborated on the basis of the historical sales of units from years 2005 to 2010. The prognosis has been also conducted for the other anaesthetic agents: Desflurane and Isoflurane. The trend was estimated by the MS Excel function LINTREND. The market of Slovakia was after consulting with the head of business unit estimated on the basis of data from the Czech market due to insufficient data. The market of Czech Republic embodies similar development and similar market shares of individual companies as the Slovakia market.

There have also been assigned specific parameters to individual anaesthetics to adapt the trend so that it can indicate the real development as much as possible. After the consulting the parameters with the management the parameter for product 'A' market has been stated 1.05 as there will be more propagation of this substance from the company 'F' which would also implicate the promotion from competitor Competitor 'B'. For the market of Desflurane the parameter was estimated at 1.03 as it would be promoted only by company 'F'. The Isoflurane market on the other hand received a parameter of 0.97 as this drug will be less promoted because it is an older anaesthetic.

The prognosis of the value of the market stems from the prognosis of the volume terms. The average price has been prognosticated as well with the help of LINTREND function. The market's value terms have then been obtained by multiplying the volume terms by the prognosticated prices. In the case of Sevoflurane, as there are two competitors, the result was obtained by splitting the volume terms according to the prognosticated market shares of the two competitors. The market share has been prognosticated on the basis of the activities recommended in previous chapter and available market shares of company 'F' entering the market in the USA. The whole prognosis is worked out for next five years. The results of the prognosis are seen in tables below.

**Table 22: Czech market prognosis \***

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>CZK (SUKL)</b>												
Halothan	5,192,729	4,949,712	2,677,853	1,981,268	344,256	-	-	-	-	-	-	-
av. Price	806	791	794	826	834	-	-	-	-	-	-	-
Isofluran	41,611,594	37,371,681	40,366,714	39,507,823	40,743,258	44,000,595	29,934,735	30,303,465	30,602,808	30,832,764	30,993,332	31,084,513
av. Price		1,237	1,241	1,075	1,115	1,154	1,047	1,018	989	959	930	901
Desfluran	750,688	579,361	1,160,672	1,288,537	1,522,284	965,372	822,051	836,520	851,242	866,224	881,470	896,984
av. Price					2,694	2,105	2,085	2,001	1,921	1,844	1,771	1,700
Sevofluran	69,430,108	77,406,630	93,117,095	96,357,182	101,319,726	102,449,319	83,107,676	80,359,183	77,328,888	74,119,233	70,766,948	67,338,243
Sevoflurane 'F'							2,006	2,732	3,445	4,781	5,687	6,354
<b>celkem</b>	<b>116,985,118</b>	<b>120,307,384</b>	<b>137,322,333</b>	<b>139,134,810</b>	<b>143,929,523</b>	<b>147,415,285</b>	<b>113,864,462</b>	<b>111,499,168</b>	<b>108,782,938</b>	<b>105,818,221</b>	<b>102,641,750</b>	<b>99,319,740</b>
<b>Sevoflurane MS</b>							10%	13%	15%	20%	22%	23%
<b>Number of units</b>												
Halothan	6,443	6,259	3,373	2,400	413	-	-	-	-	-	-	-
Isofluran	23,216	22,810	23,310	26,219	26,862	28,752	28,585	29,770	30,955	32,139	33,324	34,508
Desfluran	196	138	134	66	486	372	394	418	443	470	498	528
Sevofluran	9,923	11,788	14,859	15,003	16,101	17,212	20,055	21,541	23,027	24,513	25,999	27,485
<b>total</b>	<b>39,778</b>	<b>40,995</b>	<b>41,676</b>	<b>43,688</b>	<b>43,862</b>	<b>46,336</b>	<b>49,035</b>	<b>51,729</b>	<b>54,425</b>	<b>57,122</b>	<b>59,821</b>	<b>62,521</b>

\* The market is prognosticated using the Excel function LINTREND (based on historical data) with associated parameters and the prognosis for company 'F' is based on the data from the previous penetration of the market of the United States of America.

References: SUKL (www.sukl.cz); Internal materials

**Table 23: Slovakian market prognosis: value (CZK)\***

Sevoflurane	32,427,818	35,132,306	37,427,753	38,628,828	40,978,442	39,008,548	36,952,431	34,864,377	32,764,556	30,685,624
Desflurane	572,762	651,226	743,407	482,733	403,825	404,875	405,927	406,983	408,041	409,102
Isoflurane	14,274,717	14,242,985	14,626,922	16,587,655	14,720,006	14,680,525	14,605,333	14,496,001	14,354,052	14,180,970
<b>total</b>	<b>47,275,297</b>	<b>50,026,516</b>	<b>52,798,082</b>	<b>55,699,215</b>	<b>55,699,215</b>	<b>55,699,215</b>	<b>55,699,215</b>	<b>55,699,215</b>	<b>55,699,215</b>	<b>55,699,215</b>

\* Estimated according to the data of the Czech market (exchange rate CZK/EUR=24.19)

**Table 24: Slovakian market: Company 'F'\***

Sevoflurane total (CZK)	32,427,818	35,132,306	37,427,753	38,628,828	40,978,442	39,008,548	36,952,431	34,864,377	32,764,556	30,685,624
share of sales SK/CZ	49.35%	50.54%	48.83%	50.00%	49.31%	48.54%	47.79%	47.04%	46.30%	45.57%
units	7,333	7,583	7,863	8,607	9,889	10,457	11,004	11,530	12,037	12,525
units 'F'					989	1,326	1,646	2,249	2,633	2,895
number of vaporizers					39	11	9	18	9	5

\* Estimated according to the data of the Czech market (Exchange rate CZK/EUR=24.19)

## ii. NPV model

After the prognosis of the market the NPV model is designed and it should evaluate the overall launch of the product 'A'. Before going to the specific calculations of the model it is needed to define the assumptions of this model.

Firstly it is assumed that the price of product 'A' will decrease by 10 % every year as explained previously. Another assumption is the price of the vaporisers that have been

offered for 33,990 CZK<sup>9</sup>. The lifetime of the vaporisers is set to 10 years which is important for calculating the depreciation. The planned vaporiser's depreciation is in the Table 25: Vaporizers depreciation. The number of vaporisers has been also prognosticated according to the prognosticated market share of company 'F'. The number of vaporisers for substance 'A' is estimated to be 800 in the Czech Republic and 400<sup>10</sup>. The specific numbers of the vaporizers are stated in the Table 26: Table of assumptions. Then the wages of the KAMs and PMs are taken into consideration as mentioned above. The increase of the wages is estimated at 5 % annually. The corporate tax has been set at 19 % for all of the planned years. The most important is the estimation of costs of goods sold. These include the rewards for sales and marketing team and also all the activities proposed above. After the consulting with the management the costs are estimated to be 50 % of sales that decreases to 20 % in the last year because the activities will be less intensive. The continuous decrease is stated in Table 26: Table of assumptions and Table 27: Table of Assumptions (Slovakia). Finally the discount rate has been calculated to be 10 %.

**Table 25: Vaporizers depreciation\***

Vap depreciation CZ (CZK)	2010	2011	2012	2013	2014	2015	2016
Vaporizer cost		2,719,200	729,387	619,788	1,234,816	645,212	337,764
depreciation 2011		271,920	72,939	61,979	123,482	64,521	33,776
depreciation 2012			271,920	72,939	61,979	123,482	64,521
depreciation 2013				271,920	72,939	61,979	123,482
depreciation 2014					271,920	72,939	61,979
depreciation 2015						271,920	72,939
depreciation 2016							271,920
total	-	271,920	344,859	406,837	530,319	594,840	628,617

Vap depreciation SK (CZK)	2010	2011	2012	2013	2014	2015	2016
Vaporizer cost		1,341,857	368,631	302,673	617,468	318,139	163,960
depreciation 2011		134,186	36,863	30,267	61,747	31,814	16,396
depreciation 2012			134,186	36,863	30,267	61,747	31,814
depreciation 2013				134,186	36,863	30,267	61,747
depreciation 2014					134,186	36,863	30,267
depreciation 2015						134,186	36,863
depreciation 2016							134,186
total	-	134,186	171,049	201,316	263,063	294,877	311,273

\*Based on the expected life time of 10 years.

<sup>9</sup> The vaporisers at this price have been offered by the manufacturer of vaporisers Dräger Medical Ltd. (Internal sources)

<sup>10</sup> Internal sources

Reference: Author's calculations

**Table 26: Table of assumptions (CZ)**

Continuous price decrease	10%					
Vaporizer price	33990					
Number of Vaporizers	80	21	18	36	19	10
Vaporizer cost	2719200	729387	619788	1234816	645212	337764
Cost of goods	50%	40%	30%	25%	23%	20%
Product Manager/month	80000	84000	88200	92610	97241	102103
Key account manager/month	100000	50000	52500	55125	57881	60775
Unit cost (USD)	53.04					
Exchange rate CZK/USD 19.3.2011	17.26					
Unit cost (CZK)	916					
Cost annual increase	2%					
Labour cost annual increase	5%					
Discount rate	10%					
Corporate tax	19%					
Vaporizer life (years)	10					

Reference: Internal sources

**Table 27: Table of Assumptions (Slovakia)**

Continuous price decrease	10%					
Vaporizer price	33990					
Number of Vaporizers	39	11	9	18	9	5
Vaporizer cost	1341857	368631	302673	617468	318139	163960
Cost of goods	50%	40%	30%	25%	23%	20%
Product Manager/month	80000	40000	42000	44100	46305	48620
Key account manager/month	75000	0	0	0	0	0
Unit cost (USD)	53.04					
Exchange rate CZK/USD 19.3.2011	17.26					
Unit cost (CZK)	916					
Cost annual increase	2%					
Labour cost annual increase	5%					
Discount rate	10%					
Corporate tax	19%					
Vaporizer life (years)	10					

Reference: Internal materials

The NPV model itself then calculates the net present value of the planned launch. The revenues are taken as estimated number of units sold multiplied by the price of a unit. The calculated number represents the gross sales. Then the costs of goods, calculated as percentage of sales, are subtracted. Also the labour costs are subtracted. The result is the gross profit. To see the development of ratio of costs to sales the gross profit margin is calculated.

From the gross profit the vaporisers' depreciation is subtracted resulting in earnings before interest and tax (EBIT). After, the tax is subtracted and the outcome is net profit. As the interest is not assumed it is not subtracted. To get free cash flow (FCF) we have to add the costs that are not actually paid and add expenses that are not costs. These include the vaporisers' depreciation which is subtracted and the expenses to buy the vaporisers are



added. Then the discount factor is calculated and the FCF is then multiplied by the discount factor resulting in discounted cash flow (DCF). Then the sum of DCF of all years represents the first part of the NPV. There is also estimated that the plan of sales has the second phase whose NPV is calculated as the FCF of the last year of the first phase divided by the discount rate. This is called the Terminal value. Then the sum of the NPV of first phase and of the Terminal value is the total NPV. The Table 28: NPV model showing the calculation of NPV is below.

**Table 28: NPV model\***

Czech Republic	2010	2011	2012	2013	2014	2015	2016
Std Units	-	2,006	2,732	3,445	4,781	5,687	6,354
Gross ASP	-	4,180	3,762	3,386	3,047	2,742	2,468
Gross Sales		8,383,095	10,277,467	11,664,778	14,567,713	15,597,483	15,682,644
Cost of goods		4,191,547	4,110,987	3,499,433	3,641,928	3,587,421	3,136,529
Labor Cost		2,160,000	1,608,000	1,688,400	1,772,820	1,861,461	1,954,534
<b>Mgmt Gross Profit (Net)</b>		<b>2,031,547</b>	<b>4,558,480</b>	<b>6,476,945</b>	<b>9,152,965</b>	<b>10,148,601</b>	<b>10,591,581</b>
MGP in % of Sales (Net)		24%	44%	56%	63%	65%	68%
Vap Depreciation		271,920	344,859	406,837	530,319	594,840	628,617
EBIT		1,759,627	4,213,622	6,070,107	8,622,646	9,553,760	9,962,964
Tax		334,329	800,588	1,153,320	1,638,303	1,815,214	1,892,963
Net profit		1,425,298	3,413,034	4,916,787	6,984,343	7,738,546	8,070,001
Vap Cost		2,719,200	729,387	619,788	1,234,816	645,212	337,764
FCF	-	1,021,982	3,028,506	4,703,836	6,279,846	7,688,174	8,360,853
Discount factor		1.0000	0.9091	0.8264	0.7513	0.6830	0.6209
DCF	-	1,021,982	2,753,187	3,887,468	4,718,141	5,251,126	5,191,432
Terminal value							83,608,535
<b>NPV</b>		<b>20,779,373</b>					
NPV including TV		104,387,907					

Slovakia	2010	2011	2012	2013	2014	2015	2016
Std Units	-	989	1,326	1,646	2,249	2,633	2,895
Gross ASP	-	4,180	3,762	3,386	3,047	2,742	2,468
Gross Sales		4,133,507	4,988,964	5,574,138	6,852,395	7,221,515	7,146,484
Cost of goods		2,066,753	1,995,586	1,672,241	1,713,099	1,660,949	1,429,297
Labor Cost		1,860,000	480,000	504,000	529,200	555,660	583,443
<b>Mgmt Gross Profit (Net)</b>		<b>206,753</b>	<b>2,513,378</b>	<b>3,397,897</b>	<b>4,610,096</b>	<b>5,004,907</b>	<b>5,133,744</b>
MGP in % of Sales (Net)		5%	50%	61%	67%	69%	72%
Vap Depreciation		134,186	171,049	201,316	263,063	294,877	311,273
EBIT		72,568	2,342,330	3,196,581	4,347,033	4,710,030	4,822,472
Tax		13,788	445,043	607,350	825,936	894,906	916,270
Net profit		58,780	1,897,287	2,589,230	3,521,097	3,815,124	3,906,202
Vap Cost		1,341,857	368,631	302,673	617,468	318,139	163,960
FCF	-	1,148,892	1,699,704	2,487,873	3,166,692	3,791,862	4,053,515
Discount factor		1.0000	0.9091	0.8264	0.7513	0.6830	0.6209
DCF	-	1,148,892	1,545,186	2,056,093	2,379,182	2,589,893	2,516,914
Terminal value							40,535,149
<b>NPV</b>		<b>9,938,377</b>					
NPV including TV		50,473,525					

\* The price is estimated to be 4180 CZK for the first with decrease of 10 % every year. The number of units sold

is taken from the previous market prognosis. Costs are calculated according to the prognosticated strategic activities.

References: Author's calculation

### iii. Return on Investment

To evaluate the effectiveness of the investments into this project the ROI is used. It is calculated as the sum of gross sales and expenses that are not costs and then costs that are not expenses are subtracted. This number is then divided by the expenses. The ROI is calculated for every year. For all years it resulted in number that is bigger than one which is acceptable. It is rapidly increasing and in the last year of the plan reaches 284 % in the case of the Czech Republic and 322 % in the case of Slovakia. The ROI is stated in the Table 29: ROI.

Table 29: ROI

ROI (CZ)	119%	165%	205%	230%	257%	284%
ROI (SK)	101%	182%	229%	252%	286%	322%

Reference: Author's calculations from the previous prognosis and NPV model.

### iv. Breakeven point

The breakeven point is used to see how many units at least have to be sold to make up for the costs. This means that at this number of units the profit is zero. The breakeven point is calculated for the overall costs, for the cost of vaporizers and also for the cost of the labour force. The basic formula is the ratio of fixed costs and the residual of price per unit and variable cost per unit.

The breakeven point for the overall costs was calculated to be around 1000 units per year in the Czech Republic and around 400 in Slovakia depending on each year. It is clear that there is a quite large safety margin meaning the difference of estimated sales and the breakeven point.

When we look at the breakeven point for covering the costs of vaporisers we see that the monthly sales of units are very low, not even exceeding 0.2 and 0.13. The vaporisers can thus be provided to customers even with low consumption of the anaesthetic but they have to realise the sales for 10 years (the same time as the vaporiser lifetime).

Lastly the minimal number units sold to cover the labour costs varies from 59 to 86 respectively 18 to 74 units sold per month, which is significantly more than the vaporisers coverage. On the other hand the safety margin is still very high.

The individual calculations of breakeven points are shown in the tables below.

**Table 30: Breakeven points (CZ)**

BEP total	1,164	865	884	1,008	1,163	1,308
BEP (Vap cost,monthly)	0.136	0.125	0.120	0.124	0.134	0.143
BEP (labor costs,monthly)	86	59	59	65	73	82

Reference: Author's calculation from the previous prognosis and NPV model.

**Table 31: Breakeven points (SK)**

BEP total	954	288	298	347	403	453
BEP (Vap cost,monthly)	0.136	0.125	0.120	0.124	0.134	0.143
BEP (labor costs,monthly)	74	18	18	19	22	25

Reference: Author's calculation from the previous prognosis and NPV model.

## v. Sensitivity analysis

Finally the sensitivity analysis was elaborated. It is used to see how the results are changed when the input variables change. It can be applied to all of the input variables. In the case of product 'A' the dependence of the total NPV on price depreciation percentage, vaporiser's price, discount rate, vaporiser's lifetime and percentage of costs of goods was calculated.

It has been proved that the total NPV is mostly dependent on the price depreciation percentage and the height of the discount rate. These influence the NPV almost by 100 %. On the other hand the NPV is least dependent on the vaporiser price and lifetime that change the result only slightly. The specific values for different sensitivity analyses are recorded in the appendix 7.

## vi. Strategy timeline

Finally the timeline of the specific strategic activities and needed steps including the total costs and total sales in every year is presented. It can be found in Figure 5: Strategy timeline.

Figure 5: Strategy timeline

### Launch (Autumn)

•Launch symposium

•POS visits

•Purchase of 119 vaporizers

•Round table events

•Scientific article published

•Foundation of scientific forum

•2 KAMs and 3 PMs hired

•Sales and marketing teams training

•Costs: 50% of sales

•Sales: 12 516 602 CZK

•POS visits

•Purchase of 27 vaporizers

•Round table events

•Scientific articles published

•1 KAM and 3 PMs

•Teams trainings

•Costs: 30 % of sales

•Sales: 17 238 916 CZK

•POS visits

•Purchase of 28 vaporizers

•Round table events

•Scientific articles published

•1 KAM and 3 PMs

•Teams trainings

•Costs: 23 % of sales

•Sales: 22 818 998 CZK

2011

2012

2013

2014

2015

2016

•Setting of  
maximal price  
•Setting of  
reimbursement

•POS visits  
•Purchase of 33 vaporizers  
•Round table events  
•Scientific articles published  
•1 KAM and 3 PMs  
•Teams trainings  
•Costs: 40 % of sales  
•Sales: 15 266 431 CZK

•POS visits  
•Purchase of 54 vaporizers  
•Round table events  
•Scientific articles published  
•1 KAM and 3 PMs  
•Teams trainings  
•Costs: 25 % of sales  
•Sales: 21 420 108 CZK

•POS visits  
•Purchase of 15 vaporizers  
•Round table events  
•Scientific articles published  
•1 KAM and 3 PMs  
•Teams trainings  
•Costs: 20 % of sales  
•Sales: 22 829 128 CZK

## 7. Conclusion

In this diploma thesis the launching strategy for the Product 'A' offered by Company 'F' is proposed followed by the economic evaluation of the incremental sales generated by the Product 'A'. The launch strategy was designed specifically for the Czech and Slovak market.

The markets of the Czech Republic and Slovakia were analysed on the basis of the theoretical models introduced in the theoretical part. The analyses evidenced that the markets show similar characteristics and developments and so the strategy is designed for both markets without significant differences. The publicly available data of Slovakian market are insufficient so the author estimated the needed data with the help of the data of the Czech market.

Both of the markets are suitable for launching of a new generic drug. The growth of the pharmaceutical sales has been continuously increasing. The sales of generics have been growing more rapidly which favours the launch even more. The pharmaceutical market is large both in value and volume terms. What more the countries are highly ranked according to the analyses elaborated by reputable authorities.

It has been argued that there are two main competitors on the market for Company 'F' out of which one is direct competitor. This direct competitor has a major influence on the market as it possesses the majority of sales on the market both in values and volume. Company 'F' is though offering slightly different drug as it is a generic one to the competitor's original drug. The other competitor is thus an indirect one offering similar drugs in the field of inhalation anaesthetic agents.

As Company 'F' is already present on the market it has a significant experience which is advised to utilise during the launch and further sales of the new Product 'A'. There are also plenty of new strategic points proposed.

The strategy has been suggested with the help of the 7 P's marketing model discussed in this paper. The major importance is put on the sales and marketing teams that will be conducted by the key account managers and project managers. It is advised to train the sales and marketing teams not only in selling skills but also to increase the level of knowledge of all the

products offered by Company 'F' in the field of inhalation anaesthetics and also of the scientific background. The second type of training is considered to be even more important.

Secondly the target groups are introduced. The major interest should be put on the target groups such as medical doctors, nurses, management of the medical facilities and also the tender committees depending on the type of decision making process. The most important and profitable target segments should include big hospitals that are mostly faculty hospitals. In these the contracts are of the biggest volume and thus of the highest possible sales. These contracts are also the most profitable in relation to the needed new vaporizers offered for free by Company 'F'.

Other very important strategic area is the form of promotion of the Product 'A'. It is proposed to start the launch with the Launch Symposium on which also the foreign and reputable doctors should be present. Other important activities include the Round Table Events conducted by the advocate who should be represented by a reputable domestic doctor who is at the same time a key opinion leader in this area. Others should include the visits by representatives directly at the point of sales meaning the hospitals and medical facilities itself.

Crucial is also to offer lower price than the main competitor Abbott as Product 'A' is only the generic drug. This is considered to be the decisive motivation that would turn the potential customers to Company 'F's side. Other important motivating factor would be the provision of new state of art vaporizers and the possibility of buying all three types of anaesthetic agents used during surgeries.

Taking into consideration the proposed strategy the NPV model has been developed. The incremental sales and costs are estimated. There has been set a series of assumptions including discount rate, labour costs, vaporiser life, corporate tax, costs annual increase, labour costs annual increase and continuous price decrease. Given these assumptions and the estimation of total incremental sales reaching 112 090 183 CZK and costs reaching 32 705 770 CZK the NPV was calculated to be 104.4 million CZK for the Czech Republic and 50.5 million CZK for Slovakia. The total NPV has thus been resulted to be 154.9 million CZK.

To evaluate this NPV economically the Return on investment analysis has been calculated followed by the Breakeven point analysis and Sensitivity analysis. All of these analyses reached favourable positive numbers which supports the vision of successful launching of Product 'A'. The sensitivity analysis showed that the value of NPV is mostly dependent on the price decline and the discount rate. The biggest risk is thus seen mainly in the danger of decreasing the price of Product 'A'. Nevertheless the breakeven point analysis proved that the safety margin is high which gives Company 'F' a strong shelter. The launch of Product 'A' should then be a success.

## 8. References

1. Competitor 'B', 2011. Competitor 'B': O společnosti [online]. Available at <http://www.competitor 'B'.cz/o-spolecnosti.html> [Accessed 23 April 2011]
2. Anon, 2004. Company 'A' International: Prezentace [online]. Available at [http://company 'A'.cz/spol\\_company 'A'/company 'A'\\_international/prezentace\\_bax.html](http://company 'A'.cz/spol_company 'A'/company 'A'_international/prezentace_bax.html) [Accessed 16 April 2011]
3. Anon, 2010. Companies and markets: The Eastern European Pharmaceutical Market Outlook To 2014 [online]. Available at <http://www.companiesandmarkets.com/Summary-Market-Report/the-eastern-european-pharmaceutical-market-outlook-to-2014-policy-environment,-market-structure,-competitive-landscape,-growth-opportunities-154138.asp> [Accessed 19 April 2011]
4. Anon, 2010. Marketing mantra: Marketing mix [online]. Available at <http://mantra4marketing.blogspot.com/2010/06/marketing-mix.html> [Accessed 12 April 2011]
5. Anon, 2011a. Marketing mix. Marketing teachers [online]. Available at <http://www.marketingteacher.com/lesson-store/lesson-marketing-mix.html> [Accessed 6 April 2011]
6. Anon, 2011b. Learn marketing: Service Marketing Mix/Extended Marketing Mix [online]. Available at <http://www.learnmarketing.net/servicemarketingmix.htm> [Accessed 19 March 2011]
7. Anon, 2011c. Learn marketing: Product strategies [online]. Available at <http://www.learnmarketing.net/product.htm> [Accessed 12 March]
8. Boučková, J. et al., 2003. Marketing. Prague: C. H. Beck. ISBN: 80-7179-577-1
9. Businessmonitor, 2011. Slovakia - pharmaceuticals & healthcare report. Businessmonitor International. ISSN 1748-2178 [available via Proquest database]
10. Campbell, D., Stonehouse, G. and Houston, B., 2002. Business Strategy. Second Edition. Oxford: Elsevier Butterworth Heinemann.



11. CIPD, 2011. PESTLE analysis [online]. Available at: <http://www.cipd.co.uk/subjects/corpstrtg/general/pestle-analysis.htm> [Accessed 12 April 2011]
12. Company 'F', 2011b. Company 'A' International: History [online]. Available at [http://www.company 'A'.com/about\\_company 'A'/company\\_profile/history.html](http://www.company 'A'.com/about_company 'A'/company_profile/history.html) [accessed 20 March 2011]
13. Company 'F', 2011a. Vývoj společnosti [online]. Available at: [http://company 'A'.cz/spol\\_company 'A'/sub/vyvoj\\_spolecnosti.html](http://company 'A'.cz/spol_company 'A'/sub/vyvoj_spolecnosti.html) [accessed 20 March 2011]
14. Company 'F', 2011c. Company 'A' International: Corporate overview [online]. Available at: [http://www.company 'A'.com/about\\_company 'A'/company\\_profile/corporate\\_overview.html](http://www.company 'A'.com/about_company 'A'/company_profile/corporate_overview.html) [accessed 18 March 2011]
15. ECORYS, 2009. Competitiveness of the EU Market and Industry for Pharmaceuticals: Volume I: Welfare Implications of Regulation [online]. ECORYS. Rotterdam. Available at: [http://ec.europa.eu/enterprise/.../vol\\_1\\_welfare\\_implications\\_of\\_regulation\\_en.pdf](http://ec.europa.eu/enterprise/.../vol_1_welfare_implications_of_regulation_en.pdf) [Accessed 30 April 2011]
16. ECORYS, 2009b. Competitiveness of the EU Market and Industry for Pharmaceuticals, Volume II: Markets, Innovation & Regulation [online]. ECORYS, Rotterdam. Available at: [http://ec.europa.eu/enterprise/.../vol\\_2\\_markets\\_innovation\\_regulation\\_en.pdf](http://ec.europa.eu/enterprise/.../vol_2_markets_innovation_regulation_en.pdf) [Accessed 22 April 2011]
17. EFPIA, 2005. PHARMACEUTICAL SUPPLY CHAIN EVOLUTION [online]. Available at: <http://www.efpia.eu/Content/Default.asp?PageID=559&DocID=1349> [Accessed 4 April 2011]
18. EFPIA, 2010. The pharmaceutical industry in figures [online]. Available at: <http://www.efpia.eu/Content/Default.asp?PageID=559&DocID=9158> [Accessed 23 May 2011]
19. Eurostat, 2011. Science, Technology and innovation: Main Tables [online]. Available at [http://epp.eurostat.ec.europa.eu/portal/page/portal/science\\_technology\\_innovation/data/main\\_tables](http://epp.eurostat.ec.europa.eu/portal/page/portal/science_technology_innovation/data/main_tables) [Accessed 23 May 2011]
20. Golikeri, P., 2010. Pharma companies struggle to solve EU's Rubik's Cube; Varying situations in the 27 nations make tapping the bloc's market tough. DNA: Daily News & Analysis [online]. Mumbai. January 05. Accessed via Proquest [Accessed 30 May 2011].

21. Health Policy Institute, 2009. Slovenské zdravotníctvo 2009 [online]. Available at <http://www.hpi.sk/cdata/Publications//hpi-dopady-krizy.pdf> [Accessed 28 March 2011]
22. Hofstede, G., 2009. Cultural Dimensions [online]. Available at [http://www.geert-hofstede.com/hofstede\\_czech\\_republic.shtml](http://www.geert-hofstede.com/hofstede_czech_republic.shtml) [Accessed 20 May, 2011]
23. Hollensen, S., 2007. Global Marketing. London: Pearson Education Limited. ISBN 978-0-273-70678-6
24. Hunter, Laura and Erin Leahey. 2008. 'Collaborative Research in Sociology: Trends and Contributing Factors'. American Sociologist 39:290–306. Available via Proquest.
25. Jakubíková, D., 2008. Strategický marketing, stratégie a trendy. Prague: Grada Publishing. ISBN: 978-80-247-2690-8
26. Kotler, P., 1997. Marketing management. London: Prentice Hall.
27. Kotler, P., Armstrong, G., Saunders, J., Wong V., 2007. Moderní marketing. Prague: Grada Publishing. ISBN: 978-80-247-1545
28. Kotler, P., Keller K. L., 2007. Marketing management. Prague: Grada Publishing. ISBN: 978-80-247-1359-5
29. Machková, H., 2006. Mezinárodní marketing. Prague: Grada Publishing. ISBN: 80-247-1678-X
30. Machková, H., 2009. Mezinárodní marketing: Nové trendy a reflexe změn ve světě. Prague: Grada Publishing. ISBN: 978-80-247-2986-2
31. METYŠ, K.; BALOG, P., 2006. *Marketing ve farmacii*. Prague: Grada Publishing. ISBN 80-247-0830-2
32. Ministry of Health, 2011a. Price provision [online]. Available at <http://www.mzcr.cz/Soubor.ashx?souborID=6573&typ=application/pdf&nazev=Cenovy%20predpis%20LP.pdf> [Accessed 10 April 2011]
33. Ministry of health, 2011b. Business Surgence [online]. Available at <http://www.health.gov.sk/?prechod-na&sprava=elektronicka-kalkulacka-a-postup-instalacie-funkcie-programu-excel-vypocet-cien-degresivna-obchodna-prirazka-v-eurach-platna-od-1-1-2009> [Accessed 10 April 2011]

34. NCZI, 2009. Narodne Centrum Zdravotníckých informácií: Činnosť anestéziológie a intenzívnej medicíny [online]. Available at [http://www.nczisk.sk/buxus/generate\\_page.php?page\\_id=782](http://www.nczisk.sk/buxus/generate_page.php?page_id=782) [Accessed 13 May 2011]
35. NOVAKOVÁ, E.; JANDOVÁ, V., 2006. Reklama a její regulace. 1.vyd. Prague: Linde Praha, p 208. ISBN 80-72016-016
36. Novinky.cz, 2007. Slovensko má s poplatky ve zdravotnictví zkušenosti [online]. Available at <http://www.novinky.cz/ekonomika/113105-slovensko-ma-s-poplatky-ve-zdravotnictvi-zkusenosti.html> [Accessed 1 April 2011]
37. NRC, 2011. Národní referenční centrum.
38. OECD, 2011. Statistics from A-Z [online]. Available at [http://www.oecd.org/document/0,3746,en\\_2649\\_201185\\_46462759\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/0,3746,en_2649_201185_46462759_1_1_1_1,00.html) [Accessed 19 April 2011]
39. Oxford University Press, 2007. PESTEL analysis of the macro-environment [online]. Available at: [http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page\\_12.htm](http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page_12.htm) [Accessed 23 April 2011]
40. Competitor 'C', 2011. Competitor 'C' India Ltd.: About us [online]. Available at [http://www.nicholascompetitor 'C'.com/aboutus.htm](http://www.nicholascompetitor'C'.com/aboutus.htm) [Accessed 15 April 2011]
41. Porter, M., E., 1980. Competitive strategy: Techniques for Analysing Industries and Competitors. New York: Free Press.
42. Rumelt, R.P., 1991. How much does industry matter? Strategic Management Journal [online], Vol. 12, No. 3, pp. 167 – 185. Available via Proquest.
43. SARIO, 2009. Slovenská agentúra pre rozvoj investícií a obchodu: CHEMICKÝ A FARMACEUTICKÝ PRIEMYSEL: Sektorová analýza 2009 [online]. Available at [http://www.sario.sk/userfiles/file/sario/pzi/sektorove/chem/chemicky\\_priemysel\\_2009.pdf](http://www.sario.sk/userfiles/file/sario/pzi/sektorove/chem/chemicky_priemysel_2009.pdf) [Accessed 12 April 2011]
44. SUKL, 2011. Souhrn údajů o přípravku [online]. Available at <http://www.sukl.cz/download/spc/SPC432.pdf> [Accessed 2 March 2011]
45. Value Based management, 2011. 7 P's [online]. Available at [http://valuebasedmanagement.net/methods\\_marketing\\_mix.html](http://valuebasedmanagement.net/methods_marketing_mix.html) [Accessed 8 April 2011]

46. Value Based Management, 2011. Five Competitive Forces model Porter [online]. Available at [http://valuebasedmanagement.net/methods\\_porter\\_five\\_forces.html](http://valuebasedmanagement.net/methods_porter_five_forces.html) [Accessed 16 April 2011]
47. Verbigena, 2005. The History and Analysis of the Pharmaceutical Industry [online]. Verbigena. Available at: [http://www.verbigena.com/case\\_studies/history\\_analysis.pdf](http://www.verbigena.com/case_studies/history_analysis.pdf) [Accessed 30 December 2010]
48. Wikipedia, 2011. Seznam ministrů zdravotnictví České republiky [online]. Available at [http://cs.wikipedia.org/wiki/Seznam\\_ministrů\\_zdravotnictví\\_České\\_republiky](http://cs.wikipedia.org/wiki/Seznam_ministrů_zdravotnictví_České_republiky) [Accessed 2 May 2011]
49. Zákon č. 40/1995 Sb. O regulaci reklamy a o změně a doplnění některých dalších zákonů [online] Available at <http://business.center.cz/business/pravo/zakony/regulace-reklamy/clanek1.aspx> [Accessed 23 May 2011]
50. Zdravotnické noviny, 2011. I nově navržené zvýšení DPH na léky se projeví ve vyšších nákladech pacientů a zdravotních pojišťoven [online]. Available at <http://www.zdn.cz/denni-zpravy/z-domova/i-nove-navrzene-zvyseni-dph-na-leky-se-projevi-ve-vyssich-nakladech-pacientu-a-zdravotnich-pojistoven-458724> [Accessed 2 April 2011]
51. Zhang, He and Tan, 2008. Understanding local pharmaceutical supply chain visibility. Simtech technical reports, Vol 9 No 4. Available via Proquest database
52. ZYCH, J., 1993. *Sociální farmacie*. Prague: Univerzita Karlova. ISBN 80-7066-819-9.

## 9. List of tables

Table 1: Maximal surcharges - Czech Republic (CZK) .....	39
Table 2: Maximal surcharge – Slovakia (EUR) .....	40
Table 3: Macroeconomic indicators: Czech Republic.....	42
Table 4: Macroeconomic indicators: Slovakia .....	42
Table 5: Demographic development .....	43
Table 6: Total health expenditures.....	44
Table 7: R&D expenditures, Researchers, Patents.....	45
Table 8: Ranking of pharmaceutical business environment .....	46
Table 9: Industry indexes.....	47
Table 10: Average wages of pharmacologists .....	48
Table 11: Average price of a drug unit .....	50
Table 12: Pharmaceutical sales .....	52
Table 13: ATC classification: N group sales .....	54
Table 14: Anaesthetic agents - market shares .....	55
Table 15: Health facilities (Czech Republic).....	56
Table 16: Health facilities (Slovakia).....	57
Table 17: Number of surgeries according to its type (CZ, 2008).....	58
Table 18:CAGR of drug market .....	59
Table 19: Quantitative evaluation .....	59
Table 20: Main driving factors of company’s micro environment .....	60

Table 21: Czech market prognosis.....	85
Table 22: Slovakian market prognosis: value (CZK).....	85
Table 23: Slovakian market: Company 'F' .....	85
Table 24: Vaporizers depreciation.....	86
Table 25: Table of assumptions (CZ).....	87
Table 26: Table of Assumptions (Slovakia) .....	87
Table 27: NPV model .....	88
Table 28: ROI.....	89
Table 29: Breakeven points (CZ).....	90
Table 30: Breakeven points (SK).....	90

## **10. List of Pictures**

Picture 1: Product levels.....	22
Picture 2: Pharmaceutical supply chain.....	70
Picture 3: Buying process.....	75
Picture 4: Porter's five forces model.....	103
Picture 5: SWOT analysis .....	103
Picture 6: 7 P's Marketing mix .....	104
Picture 7: Product 'A' .....	104
Picture 8: Vaporizer .....	105
Picture 9: Billboard advertisement.....	105

## **11. List of Figures**

Figure 1: PEST analysis - main factors *	45
--	----

Figure 2: Porter 5 Forces - main outcomes* .....	51
Figure 3: Generic and patented drug share 2010.....	53
Figure 4: OTC and Rx drugs shares (%) .....	53

## 12. List of Appendices

Appendix 1 .....	103
Appendix 2 .....	103
Appendix 3 .....	103
Appendix 4 .....	104
Appendix 5 .....	104
Appendix 6 .....	105
Appendix 7 .....	105

### 13. Appendices

#### Appendix 1)

Picture 4: Porter's five forces model



Reference: Porter's Five Forces – The Missing Link: The Marketers  
<http://www.themarketers.in/porter's-five-forces---the-missing-link/>

#### Appendix 2)

Picture 5: SWOT analysis



Reference: Business teacher: SWOT analysis <http://www.businessteacher.org.uk/business-operations/swot-analysis/>

#### Appendix 3)



Picture 6: 7 P's Marketing mix



Reference: Marketing mantra: Marketing mix

<http://mantra4marketing.blogspot.com/2010/06/marketing-mix.html>

Appendix 4)

Picture 7: Product 'A'



Reference: Internal sources

Appendix 5)

Picture 8: Vaporizer



Reference: Internal sources

Appendix 6)

Picture 9: Billboard advertisement



Reference: Pozor klíště [http://www.pozorkliste.cz/page-myslete-taky-na-sebe?utm\\_source=google&utm\\_medium=ppc&utm\\_campaign=Act\\_jaro2011](http://www.pozorkliste.cz/page-myslete-taky-na-sebe?utm_source=google&utm_medium=ppc&utm_campaign=Act_jaro2011)

Appendix 7) Sensitivity Analysis

Price depreciation   NPV			NPV + TV
0	33,512,621		190,793,693
5	27,005,626		145,354,319
10	21,395,397		108,199,657
15	16,578,365		78,120,931
20	12,459,696		54,034,265
25	8,952,884		34,973,831

Vap price (CZK)	NPV	NPV + TV
20000	23,482,362	111,185,239
<b>30000</b>	<b>21,990,607</b>	<b>109,051,156</b>
40000	20,498,852	106,917,073
50000	19,007,096	104,782,990

Discount rate	NPV	NPV + TV
5	25,161,180	198,769,701
<b>10</b>	<b>21,395,397</b>	<b>108,199,657</b>
15	18,374,231	76,243,738

Vap life	NPV	NPV + TV
5	21,733,410	108,698,746
<b>10</b>	<b>21,395,397</b>	<b>108,199,657</b>
15	21,261,339	107,667,475

Cost of goods (%)	NPV	NPV + TV
20	26,429,089	113,233,350
<b>30</b>	<b>21,674,189</b>	<b>95,775,508</b>
40	16,919,288	78,317,666
50	12,164,388	60,859,824
60	7,409,487	43,401,982

Reference: Author's calculation from the NPV model.